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COMPUTERWORLD

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Executive Report — How IS can soften the impact of changes in the work force. Page 63.

Profile: He's not the typical IS professional. Most of Haruo Nabeshima's 30-year career at Japan's Taisei Corp. was spent learning the construction business from the foundation up. Page 57.

Prime rebirth: Nearing the one-year anniversary of its acquisition by a private investment firm, the minicomputer vendor is boasting increased revenue and operating profits. Page 4.

The 'Houston 30' may ally with Corporation for Open Systems as the group of heavyweight IS managers forges efforts to breach open systems barriers. Page 6.

DEC and IBM on outside looking in as Ford group standardizes on HP's Unix minis, and GE Aerospace counts on Sun for future systems replacements. Page 8.

Release 3.1 of 1-2-3 is slated to ship within the next week or two, and beta testers say it does the job. Page 16.

IBM to pull 3090 into Summit camp

BY ROSEMARY HAMILTON
CW STAFF

IBM will usher in its next-generation mainframe and revamp its existing System/370 line with a product blitz scheduled for the first week of September, according to recently briefed customers.

The announcement, considered to be IBM's biggest mainframe introduction in years, will include the long-expected 3090 follow-on, commonly referred to as Summit.

But it appears that IBM will attempt to unite the new generation with the existing 3090 J line, which was not the case when previous mainframe generations were released.

IBM customers contacted last week said they expect that IBM will introduce an initial Summit system that will have new features, such as fiber-optic channels, and environmentals, including new power supplies.

However, the system will contain the engine of an enhanced 3090 J that has been termed the "J-Prime" by many. Then, in 1991, IBM will provide the raw performance upgrade — considered the true Summit — with a uniprocessor in the range of 40 million to 50 million instructions per second.

The pre-Summit systems scheduled to be introduced in two weeks will have a different appearance and will arrive with a smaller footprint and reduced power demand, but their innards will be the 3090 J architecture, said Terry Lowder, vice-president of technical research at Banc One Corp. in Columbus, Ohio. The bank is basing its information systems architecture on Summit and has been briefed by IBM on what to expect.

Dave Moore, a senior vice-president at Mellon Bank, said he expects IBM to offer an upgrade package that, when added

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March to the Summit

IBM's dramatic high-end revamp is expected to include the following:

- Initial Summit versions based on an enhanced 3090 J processor with fiber-optic channels, a smaller footprint and reduced power consumption.
- Upgrades to 3090 J processors to provide Summit features to current mainframes.
- New releases of DB2 and MVS/ESA.
- 4391 processor boosting 4300 line top end to 20 MIPS.

See additional stories, page 100.

Enticement

AS/400 to offer SSP-to-OS/400 migration. Page 101.

PC resellers flounder in discount sea

BY RICHARD PASTORE
CW STAFF

Personal computer dealers are trapped in a real-life version of *The Poseidon Adventure.* Despite recent restructuring and repositioning, many resellers have been unable to find their way back to the surface. Their unrelenting downward spiral of profit margins has some users worried and ready to jump ship.

One of the country's largest resellers, Businessland, Inc., reported a $21.5 million loss last quarter [CW, Aug. 13]. Other chains have suffered as well: Computer Factory, Inc. lost $7.3 million in the second calendar quarter (see chart, page 6).

"We are concerned about the health of Businessland, and we are looking at alternatives," said Wendell Harris, information

Continued on page 6

Escape from Manhattan

New York firms flee financial district blackout

BY JOHANNA AMBROSIO
CW STAFF

NEW YORK — The fears of many information systems managers were realized last week when a blackout in lower Manhattan cut the power to 200 data centers. At week's end, 20 of the nation's largest corporations were still using temporary computer centers.

Observers are calling the blackout one of the worst regional computer-related disasters in at least a decade. "It's very, very serious," said Jeff Marinstein, executive vice-president at Contingency Planning Research, Inc., a consulting firm in Jericho, N.Y.

Richard B. Zane, president of Comdisco Disaster Recovery Services, agreed. "More companies have declared disasters than did as a result of the San Francisco earthquake or the Hinsdale [Illinois] fire," Zane said.

And it is not over yet. Although Consolidated Edison, New York's electrical utility, promised to restore power by today, IS managers may be stuck in their alternative sites throughout this week as well. "Even companies whose power has been restored can't necessarily return to their data centers," Marinstein said. "They might be running on reduced power, with inadequate electricity for the computers and air-conditioning systems."

Financial services firms were hit the hardest, with at least 12 of the 20 displaced data centers coming from that sector. Citibank, Manufacturers Hanover Corp. and Credit Lyonnais

Continued on page 4

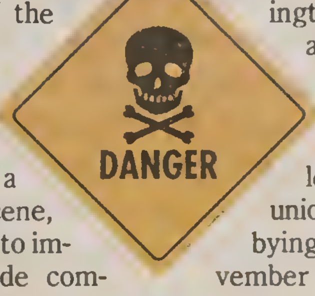
Database fight pits safety vs. expense

BY MITCH BETTS
CW STAFF

Chicago fire officials say that on the Dan Ryan Expressway, a truck containing hazardous materials goes by every 22 seconds. In fact, much of the 4 billion tons of hazardous chemicals and radioactive waste shipped in the U.S. each year is transported by trucks over the nation's highways.

And sometimes the trucks crash.

This past January, for example, a truck carrying low-level radioactive chemicals on Interstate 85 near Salisbury, N.C., collided with a car and exploded into flames. Emergency personnel were not sure how to respond to the accident because the truck's manifest was burned in the fire, and it took almost five hours to determine the exact nature of the cargo.



U.S. firefighters, who risk their lives every time they approach a similar accident scene, are urging Congress to implement a nationwide computer system that would provide them with details on every one of the estimated 500,000 daily shipments of hazardous materials.

"It's like mini-Bhopals on the highway every day. It's a disaster waiting to happen," said George Burke, spokesman for the International Association of Fire Fighters in Washington, D.C., drawing an analogy to the deaths of more than 2,500 people in a Bhopal, India, chemical leak in 1984. The union stepped up its lobbying campaign after a November 1988 incident in Kansas City, Mo., in which an unmarked trailer filled with volatile chemicals exploded, killing six firefighters.

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NEWSPAPER

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8 Patent each other on the back: **IBM** and **Sun** agree to reciprocal patenting licenses.

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101 IBM dresses up the upgrade ramp, hoping to lure more System/36 users into AS/400 waters with **AS/Entry**.

Quotable

> *"It's as if IBM is saying, 'Here's your sports car. We'll give you a new engine later on.'"*
>
> FRANK GENS
> TECHNOLOGY INVESTMENT
>
> *On IBM's new mainframe plans. See story page 1.*

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Burn their ATM cards! Check out those valuable execs populating your company, then ponder this: One in three of them would walk out the door forever and start his own competing firm if he had the funding. That comes from a recent survey of Fortune 1,000 executives by Accountemps. What's the HR department to do? "Tap this entrepreneurial energy and retain valuable executives by giving them a stake in both individual and company performance . . . to capture the appeal of self-employment without the inherent risks," the report says. Or give them something they wouldn't otherwise have, like Lakers tickets.

Spicing up customer service is Taco Bell's goal as it moves forward with new PC plans. Page 37.

Behind the Soviet love/hate relationship with computers. Page 73.

EXECUTIVE BRIEFING

■ **Summit will arrive in September,** leading IBM's biggest new product blitz in years. The initial climb to Summit will not be terribly steep for current 3090 J users, as the first of the new mainframes will basically be a large 3090 engine with additional features such as fiber-optic channels. Summit's pricing scheme will reveal IBM's strategy for the life of the 3090 line. In the meantime, IBM sales reps are dangling heavy discounts to lock in Summit sales and stave off Amdahl and Hitachi Data Systems. **Pages 1, 100.**

■ **Large divisions at Ford and General Electric will embrace Unix-based systems** and phase out proprietary IBM mainframes and DEC VAXs. Ford's $9 billion automotive components group will standardize its manufacturing control on Hewlett-Packard's Unix-based minicomputers. Separately, GE's aerospace division is moving to a client/server architecture based on Sun workstations and servers. The so-called Houston 30, a federation of users (including Ford and GE) pressing for open systems, is considering an affiliation with the vendor-dominated Corporation for Open Systems. **Stories, pages 8, 6.**

■ **"Worse than the San Francisco earthquake"** was the effect of lower Manhattan's week-long power outage on New York-based IS operations. Some 200 data centers went down last Monday, and some were still without power as of last Friday. The financial services industry was hardest hit, with brokerage transactions and electronic funds transfers halted or delayed. **Page 1.**

■ **Outsourcing while also downsizing** may be a new trend. ABB-Combustion Engineering Nuclear Power was the latest firm to announce such a strategy, farming out CDC Cyber-based operations for its engineering applications for two years while it recasts them for HP Apollo workstations. **Page 10.**

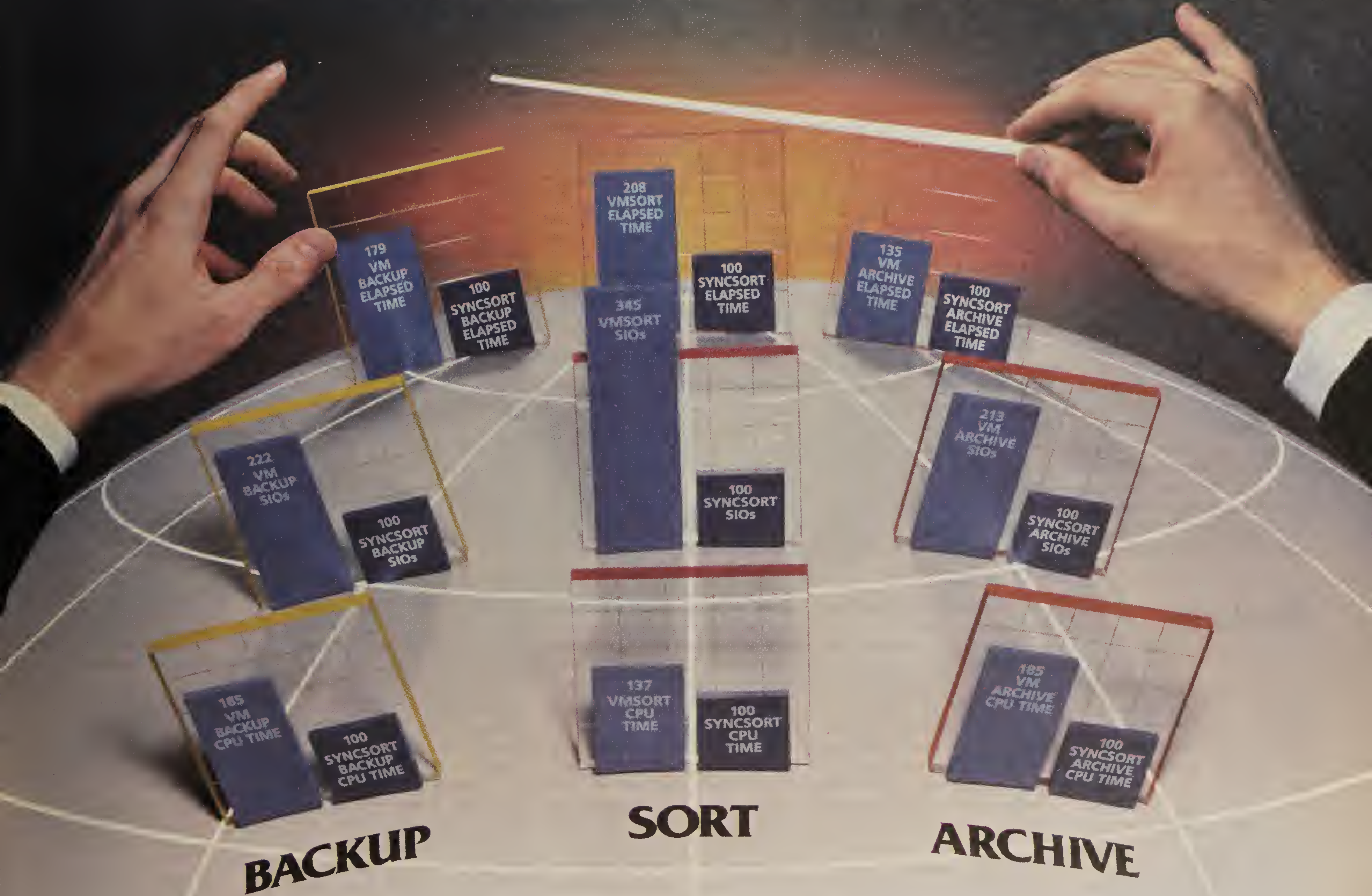
■ **Global networks are being used as a strategic technology** only at the most leading-edge firms, such as American Express, according to a Nolan Norton study. At most companies, the installation of such networks is justified on a cost basis. **Page 45.**

■ **A nationwide database of hazardous chemicals** being transported by truck is being urged by firefighters, who often lack information about the nature of chemical fires they must extinguish after trucking disasters. But the chemical and trucking industries oppose such a database. **Pages 1, 99.**

■ **Soviet computing plans are ambitious** but are likely to be slowed by a lack of equipment, a brain drain of technical personnel, uncooperative managers and primitive security know-how. Meanwhile, an ASM board member just back from Moscow found a shocking lack of IS infrastructure but a strong willingness to learn from U.S. successes — and failures. **Pages 73, 57.**

■ **On-site this week:** Few organizations have been as transformed by the falling of the Iron Curtain as Radio Free Europe. Formerly the information lifeline of the Eastern Bloc, the network is now competing on reopened airwaves with the likes of the BBC and Voice of America — with IS as an enabler of the change. Radio Free Europe uses two DEC VAX 8550s and a custom relational database management system to run a fully computerized news gathering and editing operation. **Page 31.** Taco Bell is looking to PCs to spice up profits and customer service. The Irvine, Calif., fast-food chain is installing 1,750 Hewlett-Packard Vectras for sales tracking and forecasting, staff scheduling and other Unix-based applications in its company-owned restaurants nationwide. **Page 37.**

DAY IN AND DAY OUT, SYNCSORT PERFORMS BRILLIANTLY FOR VM AUDIENCES.



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Prime merits customers' faith

BY SALLY CUSACK
CW STAFF

BEDFORD, Mass. — Closing in on the one-year anniversary of its acquisition by private-investment firm J. H. Whitney & Co., Prime Computer, Inc. last week reported a 5.7% increase in revenue for its second-quarter earnings — an announcement that reaffirmed the faith of a loyal customer base and slightly surprised industry analysts.

"The bare fact that they were able to get any increase at all is striking, particularly since their sales force has been reduced," said Wayne Kernochan, a senior analyst at The Yankee Group, a Boston-based research firm.

Cathy Van Orman, president of the National Prime Users Group, said the Prime user base is upbeat about the second-quarter results and expressed confidence in Prime's president and chief operating officer, John J. Shields. "He is a dynamic individual, and we've always felt that if anyone can dig Prime out, he's the man."

"Customers were buying a year ago at very small amounts," Shields said last week. "What we see today are large contracts from world-class companies and customers that are confident with both our products and our long-term financial viability."

Prime President and COO
Shields 'dug Prime out'

Shields, formerly senior vice-president and heir-apparent to President Kenneth H. Olsen at Digital Equipment Corp., joined Prime in January as part of a new executive lineup appointed by J. H. Whitney. At that time, James F. McDonald, former Gould, Inc. chairman and president and now Prime vice-chairman and chief executive officer, also joined the Prime turnaround team.

Prime's revenue for second-quarter 1990 was posted at $403.5 million, up from $381.9 million for second-quarter 1989. Percentage of operating income revenue was reported at 12.4%, up from 2.6% during the corresponding period last year.

Prime was also able to service its debt obligations on a bridge loan with Shearson, Lehman Hutton, Inc. Under the revisions, Shearson has reset the rating to give Prime long-term financing at a reduced interest rate. "This is a clear expression of our vote of confidence in Prime's long-term potential," a Shearson spokesman said.

Shearson will receive 7.5% of the common equity in Prime's parent company, Delaware-based DR Holdings, Inc., and an additional 1% of common equity per quarter that the present loan is outstanding, subject to a maximum of 25%.

One year ago, at the time of the acquisition, the user base was unsure and very cautious, Van Orman recalled. Now, she cites Prime's recent government contract with Electronic Data Systems Corp. and apparent commitment to open systems and Unix as reasons for renewed hope between both Prime 50 series and Computervision platform users.

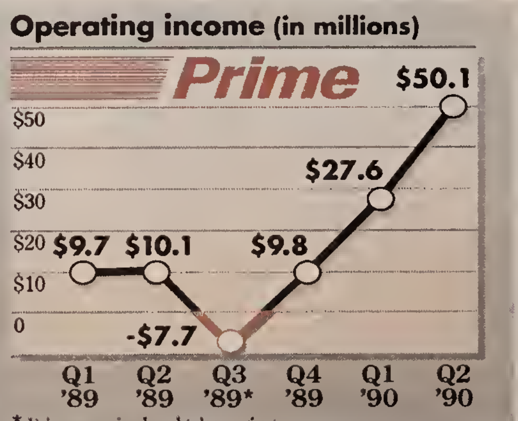
Dana Long, manager of advanced engineering at The Toro Co. in Minneapolis, indicated that his firm has always had a fair amount of confidence in Prime. "We knew that they were going to be a major long-term player in the computer-aided design field. They have good software and good people — the second-quarter news doesn't really surprise me."

Toro has been using Computervision workstations for eight years and has installed 17 of the firm's Sun Microsystems, Inc.'s Scalable Processor Architecture-based workstations since January.

According to Shields, Prime is making substantial investments in research and development to keep 50 series customers happy and provide them with an upgrade path to the open systems environment if "that is where they choose to go." Shields also indicated that Prime will soon be introducing a line of reduced instruction set computing-based Unix processors.

Signs of life

Prime executives point to increasing operating profits – which do not reflect payments on the buyout debt – as a sign of improving health



* Prime acquired and taken private

Source: Prime Computer, Inc. CW Chart: Paul Mock

Blackout

FROM PAGE 1

were among those who sought refuge in hot sites operated by Comdisco Disaster Recovery, IBM and Sungard Recovery Service, Inc. The Federal Reserve Bank shut down the mainframes in its headquarters on Thursday morning and shifted its computer operations to another Fed-owned location.

The blackout began Monday at 1:13 p.m. when fire broke out in an electrical substation near Manhattan's South Street Seaport. As 70 square blocks of lower Manhattan were darkened, some 180 data centers went down. Trading at the American Stock Exchange, the Commodity Exchange and other exchanges was also halted.

Most of the affected firms came back on-line when power in about half of the affected areas was restored at 6 p.m. on Monday. However, 60 data centers were still without power on Friday, Marinstein said.

The blackout's long-term effects will vary, observers said. For businesses that had power restored within hours, minimal disruption and no data loss was experienced. However, organizations that had no electricity for much of the week may face serious consequences.

Added to the expense of running at a hot site are such items as overtime for the systems people. However, the snags in some banks' funds-transfer systems could be far more damaging. Citibank alone is responsible for moving more than $50 billion per day. For every transaction that gets delayed because of computer glitches, interest is lost and fines levied.

John F. Lee, president of the New York Clearing House Association, said about five large banks were still having problems with their computers because of the blackout. However, his group and others have been working with the banks to help them settle their accounts and avoid large fines.

Lee was worried that the funds-transfer system in those five banks might break down altogether. "They're running by diesel generators," Lee said, "and my biggest fear is that the generators will give out."

His fears were partially realized on Wednesday, when Citibank reportedly moved its computer operations off-site because of failed generators.

The Federal Reserve Bank did the same early Thursday morning after the cooling systems in two of its three generators went down. According to a Fed spokesman, the bank shifted its Fedwire funds-transfer system to mainframes in its Pearl River, N.Y., site. "The critical things went over to Pearl River, and everything is functioning smoothly," the spokesman said.

However, because of the sheer volume of transactions handled by the Fed's New York computers — $900 million on an average day — some banks reported delays in funds transfers Thursday.

On Tuesday, Credit Lyonnais shifted its computer operations to a hot-site facility in North Bergen, N.J., run by Comdisco Disaster Recovery. For the rest of the week, more than 90 of the bank's data processing staff members and traders used Digital Equipment Corp. computers.

Zane said that of the 12 organizations using his company's facilities, only two had returned to their own shops by Thursday.

Banks were not the only ones hit. American International Group, an insurance company, also sweated through the week. The firm's major computer-related problem was "scrambling to find alternative data entry sites for claims processing," said Larry English, president of AIG Data Centers, Inc. The company's main computer center is in New Jersey and so was not affected.

CORRECTIONS

A recent article misstated the revenue growth for IBM's Application System/400 business in 1989 [CW, Aug. 6]. That growth was 19% over the previous year. The new business segment of AS/400 sales, however, grew by 27% in the U.S. during the first half of 1990. IBM officials also said they had not confirmed that six new AS/400 models would be announced Aug. 21.

A photo accompanying the article in the Aug. 6 PCs & Workstations section about New York Life Insurance Co. was mislabeled. The caption should have identified Shirley Singleton, a project manager at Logica Data Architects, Inc. in Waltham, Mass.

The credit on the illustration that appeared on page 13 of the Aug. 13 Japan supplement should read Kaz Aizawa rather than R. M. Kato.

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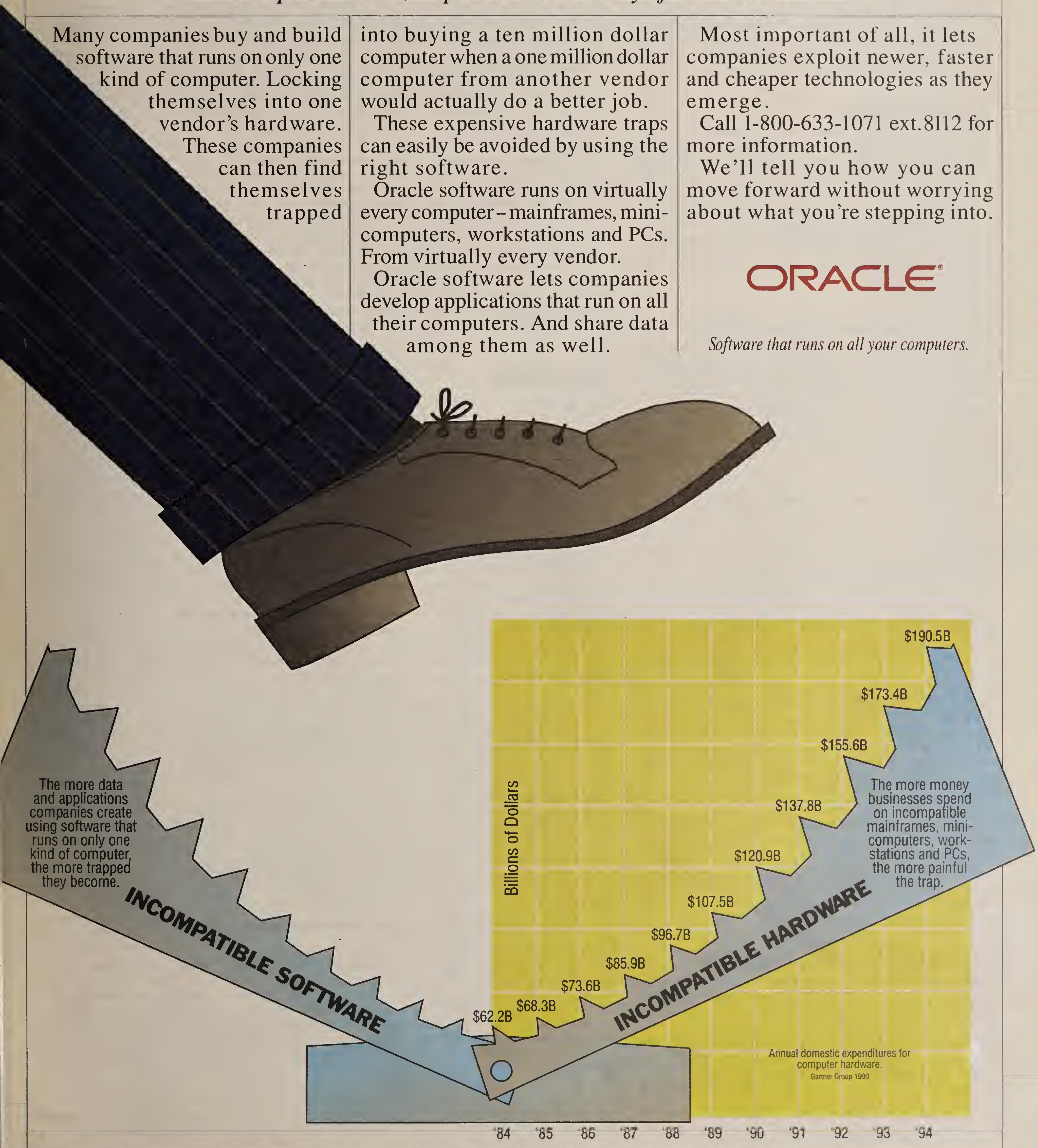

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Gartner Group 1990

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NEWS SHORTS

Windows open on Grid

Grid Systems Corp.'s latest laptop computer bends over backward to accommodate Microsoft Corp.'s Windows 3.0. The 12-pound box is powered by an Intel Corp. 20-MHz 80386SX chip, ships with 2M bytes of memory (expandable to 8M bytes) and features an IBM Video Graphics Array backlit display. The Gridcase 1550SX supports the point-and-click capability of Windows with a keyboard-based Isopoint bar, which allows for mouse-like positioning. Grid has also bundled Windows 3.0 on the 60M-byte hard disk. The $6,295 base machine includes an internal floppy disk drive and rechargeable three-hour battery.

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Timeplex upbeat

Following dismal second-quarter earnings reports from archrivals Newbridge Networks, Inc. and Network Equipment Technologies, Inc., T1 switch vendor Timeplex, Inc. announced that its revenue has grown between 20% and 25% for the first half of 1990, compared with the same period last year. One major factor behind this growth, according to Timeplex President Dewaine Osman, is that the Woodcliff Lake, N.J., vendor began shipping several long-delayed strategic products. In addition, parent company Unisys Corp.'s sales force is finally starting to move some Timeplex products off the shelves, Osman said.

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Energy firm outsources with EDS

Electronic Data Systems Corp. (EDS) has landed its sixth major energy-sector contract by signing a 10-year deal for information technology services and development with The Permian Corp./Permian Partners, L.P. The agreement calls for EDS to manage information technology for the $2.5 billion independent energy company's oil and gas distribution operations. Houston-based Permian serves 31,000 leases with 500 trucks and 4,500 miles of pipelines. It has operations in 16 states.

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Epoch looks to the Macintosh

Epoch System, Inc. took a bite of a new market last week with the announcement that Apple Computer, Inc. Macintoshes can now access Epoch-1 Infinite Storage servers for on-line storage and backup. Epoch's joint marketing agreement with Cayman Systems in Cambridge, Mass., will enable Macintosh users to connect to Epoch's Network File System protocol through Cayman's Gatorbox gateway and Gatorshare networking software. The Cayman products are priced from $1,995 for Gatorshare and from $2,795 for Gatorbox. Epoch servers start at $82,900.

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Memorex Telex adds flat screen

Memorex Telex N.V. brought flat-screen technology into the world of the IBM midrange last week with the introduction of a 14-in. monochrome display station for IBM System/36, System/38 and Application System/400 minicomputers. Prices for the 1476 A2/G2 Display Station start at $995.

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HDTV grant to Zenith

Zenith Electronics Corp. welcomed its first government grant for its high-definition display technology last week. The award, from the Defense Advanced Research Projects Agency, will go toward development of new, less costly manufacturing methods for Zenith's flat tension mask high-resolution monitors. Zenith said it expects the award will be in excess of $1 million.

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Informix adds on-line support

Informix Software, Inc. is joining the ranks of vendors that are automating their customer-support centers with electronic bulletin boards and access to on-line databases. The firm is launching a new worldwide service, called Informixlink, that will be available to value-added resellers this year and end users in 1991. Informix competitor Ingres Corp. recently unveiled a similar dial-up service called Ingres/Advisor.

More news briefs on page 99

Houston 30 seeks affiliation with COS

BY MITCH BETTS
CW STAFF

The so-called Houston 30, a group of information systems managers devoted to breaking down the barriers to open systems, has held "positive" negotiations about affiliation with the Corporation for Open Systems (COS), a Reston, Va.-based consortium.

Charles J. Gardner, director of information technology infrastructure at Eastman Kodak Co. in Rochester, N.Y., said the users group will decide whether to go ahead with the COS alliance at its mid-September meeting.

The Houston 30 — named for the location and number of users at a previous meeting — includes such heavyweights as General Electric Co., General Motors Corp. and Du Pont Co.

The group hopes to give the user community a vehicle for articulating a common set of systems requirements and prodding vendors to implement those recommendations [CW, June 25].

Gardner said the negotiations with COS "are well along, and both sides remain positive about what's happening."

In May, the Houston 30 said it was not sold on COS affiliation because the COS mission is focused primarily on networking. But Gardner said COS is willing to expand its charter to include the Houston 30's concerns.

Also on the agenda of the user-only meeting is a draft document outlining nine barriers to open systems, which are defined as computing systems that are based on international and de facto standards rather than proprietary designs. The barriers listed include the following:

- The business culture among users, developers and managers is resisting change. For users, the costs sunk into installed systems and applications make it difficult to justify the move to open systems.
- There is no critical mass of open systems products "to satisfy user needs and to entice vendors to develop open systems platforms."
- IS managers have not been able to articulate a direct link between open systems and the accomplishment of business goals.
- Compared with Europe and Japan, the U.S. government lacks a "national vision" supporting the development of open systems.

In addition, many users are wary of the notion that the basic components of information systems are common to all industries. They believe their requirements are unique and fear they will lose a competitive advantage by going with standardized systems, said Bud Huber, the Houston 30 spokesman and manager of advanced networks integration at Hughes Aircraft Co. in Long Beach, Calif.

However, Huber argued that IS managers should compete by adding value to their businesses' goods and services, rather than competing with proprietary technology.

Resellers

FROM PAGE 1

systems manager at Scott Paper Co. in Everett, Wash. "We'd like to have a vendor we can depend upon and one that is successful enough to provide us with services other than just delivering boxes."

Other users are also becoming uneasy. "I'd be very worried about their health and ability to continue support," said James LaCivita, systems manager at Child World, Inc. in Avon, Mass.

Though it is not imminent, a reseller shakeout is "very possible," said Paul Zagaeski, an analyst at The Yankee Group in Boston.

The root causes of the dealers' woes remain overdistribution and rampant discounting, observers said. "There are simply too many stores out there," said Charles Wolf, an analyst at First Boston Corp. in New York.

Early in the year, resellers such as Businessland and Computerland Corp. vowed to curb discounting and raise margins by as much as 5%. However, that strategy has failed so far, analysts agreed.

"It's not a very good strategy, because Businessland has spent years conditioning its customers to expect low prices," said Seymour Merrin, president of Merrin Information Services in Palo Alto, Calif.

Customers report little change in dealers' penchant for discounting. "They've been pretty willing to give us a good discount," said William Tiganelli, assistant vice-president at the Federal Reserve Bank in Baltimore.

Because of the highly competitive market, many dealers would lose sales if they told customers they could not afford to offer discounts. "If that's a statement a dealer makes to me, then I start shopping around," said Tim Thompson, a microcomputer analyst at St. Mary's Medical Center in Evansville, Ind.

A second strategy — that of charging separately and charging more for service and support — also seems to be failing. To make money from service, dealers must provide very high levels of support, Merrin said.

"Show me a dealer who can really provide that service, and I might be willing to pay," Thompson said. Thompson, a former Computerland store manager, said the frequent staff turnover makes it difficult for the stores to provide good, consistent service.

"It's one thing to say we charge a little more, but we're worth it," Thompson said. "But you generally find that they're not worth it."

Dealers also may have underestimated customers' abilities to handle their own support. The resellers had hoped that customers would pay them handsomely to support the new high-end, more complicated server rollouts. "But that isn't happening to the degree they expected," Zagaeski said. "Users are buying the machines, but they're doing a lot more of the work themselves."

Some observers are now saying that dealers should cede service to large systems integrators such as Electronic Data Systems Corp., concentrating instead on reducing overhead and restructuring the retail operation to emulate the fast-growing "superstore."

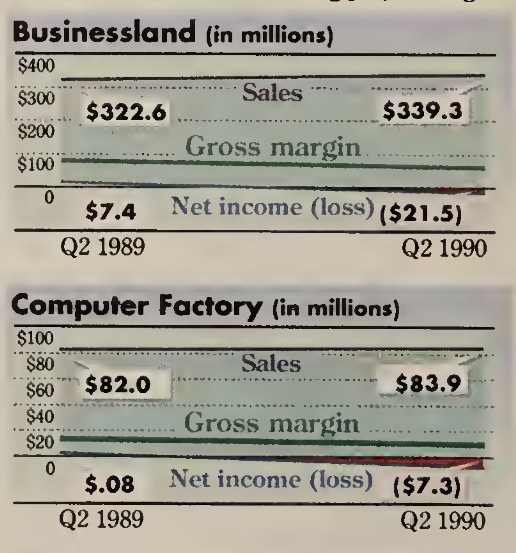
The Computer Factory announced recently that it would do just that. The chain is consolidating its less-profitable stores into larger supercenters during the next nine months.

For its part, with survival on the line, Businessland is focusing on the basics. "Our priority is to ensure that the fundamentals of the business are sound and that we recover our balance and strength in fiscal year 1991," Chief Executive Officer David Norman said.

In the meantime, dealers had better hope they can find their own Gene Hackman to keep the reseller *Poseidon* afloat.

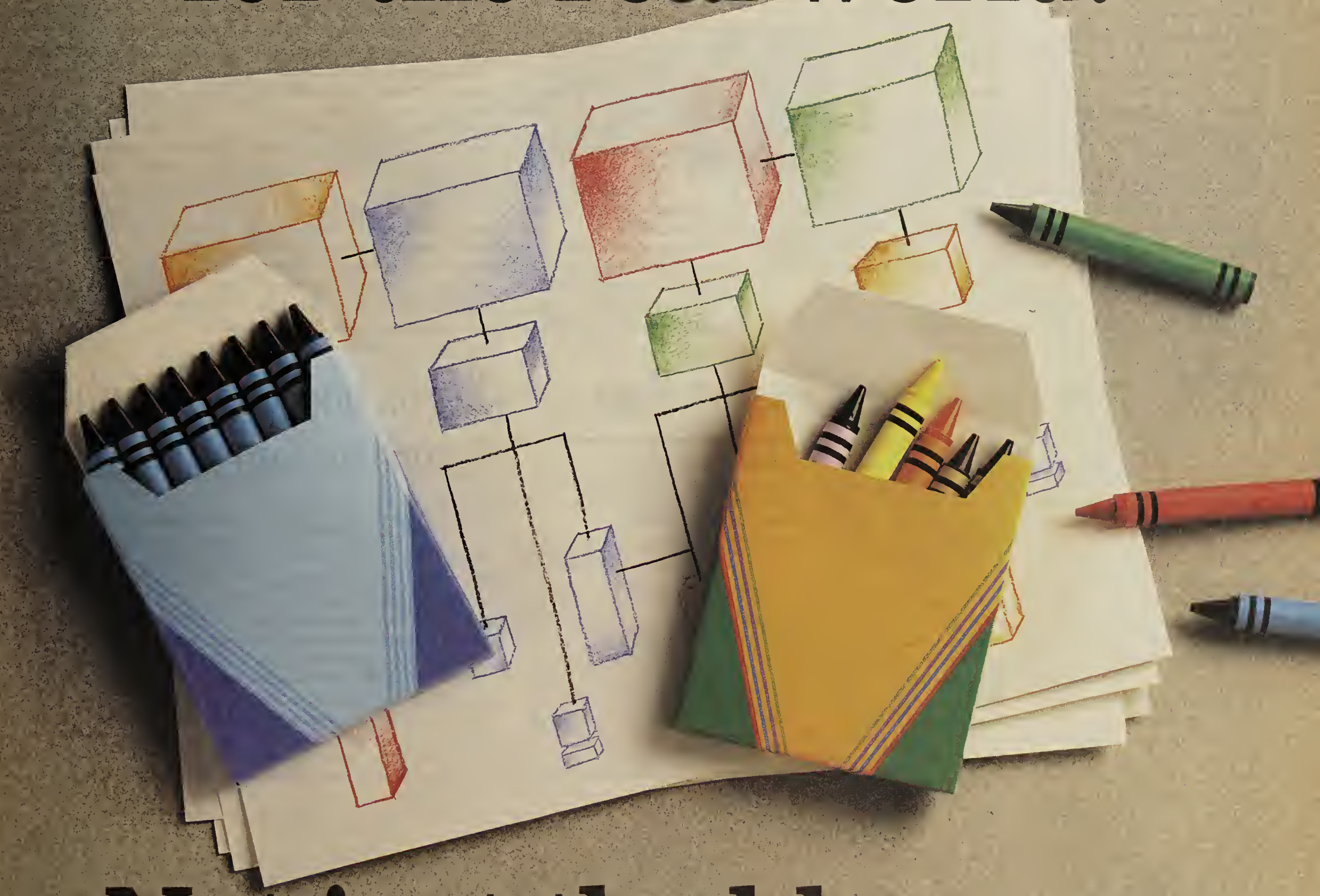
Living on the margin

With revenue relatively flat, PC dealers are feeling the impact of shrinking profit margins



CW Chart: Paul Mock

Systems and network management for the real world.



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Ford, GE divisions opt for Unix

Show IBM and DEC the door while ushering in HP and Sun systems

BY J. A. SAVAGE
CW STAFF

Two of the largest U.S. corporations are phasing out proprietary computers from IBM and Digital Equipment Corp. in favor of exclusive purchasing agreements with vendors that offer hardware based on open standards.

Ford Motor Co.'s automotive components group will standardize its manufacturing control on Hewlett-Packard Co.'s Unix-based minicomputers. At the same time, General Electric Co.'s Aerospace division is slated to move to a client/server architecture that is based on Sun Microsystems, Inc.'s Unix-based workstations and servers, Sun announced last week.

"Users are seizing control," said Michael Goulde, an analyst at the "Open Systems Advisor," based in New York.

Surprisingly, these two exclusive deals run counter to methods undertaken by most users moving to open systems. "More are trying to get flexibility by shopping around for vendors," Goulde said.

Ford and GE, while announcing the agreements at the same time, have negotiated very different deals. Ford's deal is by far the most comprehensive. GE Aerospace, on the other hand, simply got a bargain from Sun.

HP and Ford will set up a separate, cooperative organization to develop and review the most productive methods for Ford's factory automation.

HP said it hopes that the cooperation will eventually result in products that can be sold to other companies in the automotive industry.

The idea originated in the manufacturing planning and information systems group, said Chuck Feltner, the group's director, but was incubated in the business planning office with IS participation.

The component group, one of three major divisions of Ford that brings in between $8 billion and $10 billion per year, discussed the plan to standardize its manufacturing on one vendor's hardware with IBM, DEC and HP.

"We went with whomever we felt could help us the most to find what they could bring to the party to help us develop a competitive advantage through more effective use of computers," Feltner said.

The decision was not a result of a bid process, he said: "We did not go out to select a vendor."

Standardizing on HP computers was a product of the cooperation agreement, and no special hardware discounts were involved, according to Feltner. Ford's component group will keep its other vendors' machines until they wear out, at which time they will be replaced by HP equipment.

In the meantime, Ford and HP will establish what they are calling a computer-integrated manufacturing alliance, which includes a staging center with the most up-to-date HP systems simulating manufacturing processes, training support and the development of a technology plan for Ford.

GE's agreement with Sun is more straightforward. GE Aerospace, an organization with revenue of approximately $5 billion, decided to go with a single hardware platform and put it out for bid, according to Charlie Wise, GE's manager for the Aerospace Support for Systems, Integration, Software and Test program.

"That's not to say we won't buy from other Unix vendors in the long term," Wise said. "Since the defense business is downsizing, all aerospace businesses need to increase productivity," he added. "We have a very large investment in other computers, but our strategy is to go to a client/server type of system."

As the company's IBM mainframes and DEC VAXs become obsolete, they will be replaced with Sun hardware, according to Wise.

In conjunction with the Sun pact, GE Aerospace also awarded Cadre Technologies, Inc. a $10 million contract under which Cadre will supply the firm with its workstation-based Teamwork line of computer-aided software engineering (CASE) packages. Cadre officials claimed that the contract is the largest single-order CASE purchase to date.

IBM turns patent screws on Sun

BY J. A. SAVAGE
CW STAFF

In order to avoid any future patent infringement case from massive IBM, Sun Microsystems, Inc. announced last week that it will license all of IBM's patents and that IBM will have a reciprocal right to Sun's patents.

Analysts said they suspected that IBM was using its patents on reduced instruction set computing (RISC) technology to propel the agreement, in which all the royalties are expected to flow from Sun to IBM. "Although the final agreement doesn't have anything to do with RISC, it was probably used as an icebreaker," said Mark Stahlman, an analyst at Alex Brown & Sons, Inc. in New York.

An IBM spokesman acknowledged that the company had nudged Sun with a letter a few months ago, but he would not divulge the contents of the letter.

"In 1988, IBM decided to become more aggressive in trying to generate more revenue from its patent portfolio," Stahlman said. As a result, several agreements were made, including Sun's and a similar one announced earlier by Compaq Computer Corp.

IBM also has an agreement with at least one other RISC computer company, Hewlett-Packard Co., although that cross-licensing agreement predates 1988, according to IBM.

RISC factor

Speculation that IBM is demanding RISC patent royalties may affect a rapidly growing industry

	Units shipped	Value of shipments
1989	117,000	$2.13B
1990*	296,000	$4.89B
1991*	493,000	$7.45B
1992*	778,000	$10.80B
1993*	1,253,000	$16.07B

*Projected

Source: Workgroup Technologies

While acknowledging that the royalty payments would flow in only one direction, Michael Morris, Sun's general counsel, tried to paint a rosy picture of the agreement. "IBM spends billions on research and gets 600 patents a year. I think maybe down the road it could be advantageous to us." Morris would not say how much the agreement was worth.

A third company that makes RISC processors, Mips Computer Systems, Inc., would not comment on licensing. A spokeswoman refused to even say whether a licensing deal with IBM did or did not exist. Silicon Graphics, Inc., which makes workstations based on the Mips processor, has no separate agreement with IBM. Silicon Graphics said that any such licensing would be up to its supplier, Mips.

HP answers lobbying with updated HP 1000

Responding to strong lobbying by users of Hewlett-Packard Co.'s 24-year-old line of real-time computers, HP plans to announce today that the line will get a kick into the next century with a new processor.

Users did not demand a new CPU, but they were concerned about HP making a long-term commitment to the HP 1000 series.

HP 1000 computers, used most often in factory automation and process control, have had several model changes since the mid-1960s, but the basic proprietary instruction set remains the same.

Bruce Campbell, HP's general manager of data systems operations, said that the new Model A990 will require only a board swap to reach twice the power available in its current high-end model, which was introduced in 1983 — going from 3.5 million instructions per second (MIPS) to 7 MIPS.

The HP 1000 will still remain outside HP's strategy for the 1990s, known as New Wave Computing. The New Wave umbrella includes software packages to connect dissimilar computers. Promising availability by the first quarter of 1991, HP said it will continue manufacturing the system until at least the year 2000 and will support it until the year 2010.

J.A. SAVAGE

Xerox hopes for brighter future on Sun platforms

BY J. A. SAVAGE
CW STAFF

Xerox Corp., pioneer of the user-friendly graphics interface, is looking to Sun Microsystems, Inc. to make its often-emulated software more profitable for the company. Analysts said they expect an announcement in the next few weeks of a Xerox system on a range of Sun's hardware platforms with Xerox's commercial document processing software.

Xerox's current proprietary hardware and software system, the 6085 Professional Computer, suffers in sales, analysts said. Xerox would not divulge the number of units shipped.

No growth path

One reason why Xerox's computer sales have suffered, analysts and users agreed, is that the 6085 has no growth path, and no outside applications will run on it.

"The 6085 is restrictive because you can't put any other software on it," said Maria Goldin, director of computer services at Damon & Morey, a Buffalo, N.Y., law firm that uses the Xerox system.

Although she said she is generally happy with the proprietary hardware and software on the 6085 and claimed it is much easier for the firm's secretaries to use than Wordperfect Corp.'s Wordperfect — the standard word processing package used in law firms — she said attorneys could benefit from adding other applications, such as database management. She cannot add those on Xerox's proprietary system.

"It's a good thing they're doing something about opening up platforms," Goldin said. Still, she added that there is a second reason why sales of the 6085 have suffered. "[Xerox] still has the photocopier mentality. They don't advertise. They keep their systems a little-known secret."

Porting Viewpoint

The new Xerox system includes porting the company's Viewpoint and Network Services applications, used in the 6085, to Sun's operating system — a version of Unix.

These applications include Xerox's graphical user interface — the predecessor of other user-friendly interfaces, such as those found on Apple Computer, Inc.'s Macintosh.

It will be based on a range of Sun hardware, including the recently introduced Sparcstation IPC, a color workstation.

Putting an office twist on a Sun platform, which is used largely in engineering environments, might give Xerox a bit of an edge in a workstation market crowded with vendors — but industry watchers said that it is still a long shot.

"In 1980, Xerox was unique, but today there's a lot of products that look like them," said Amy Wohl, an analyst at Wohl & Associates in Bala Cynwyd, Pa.

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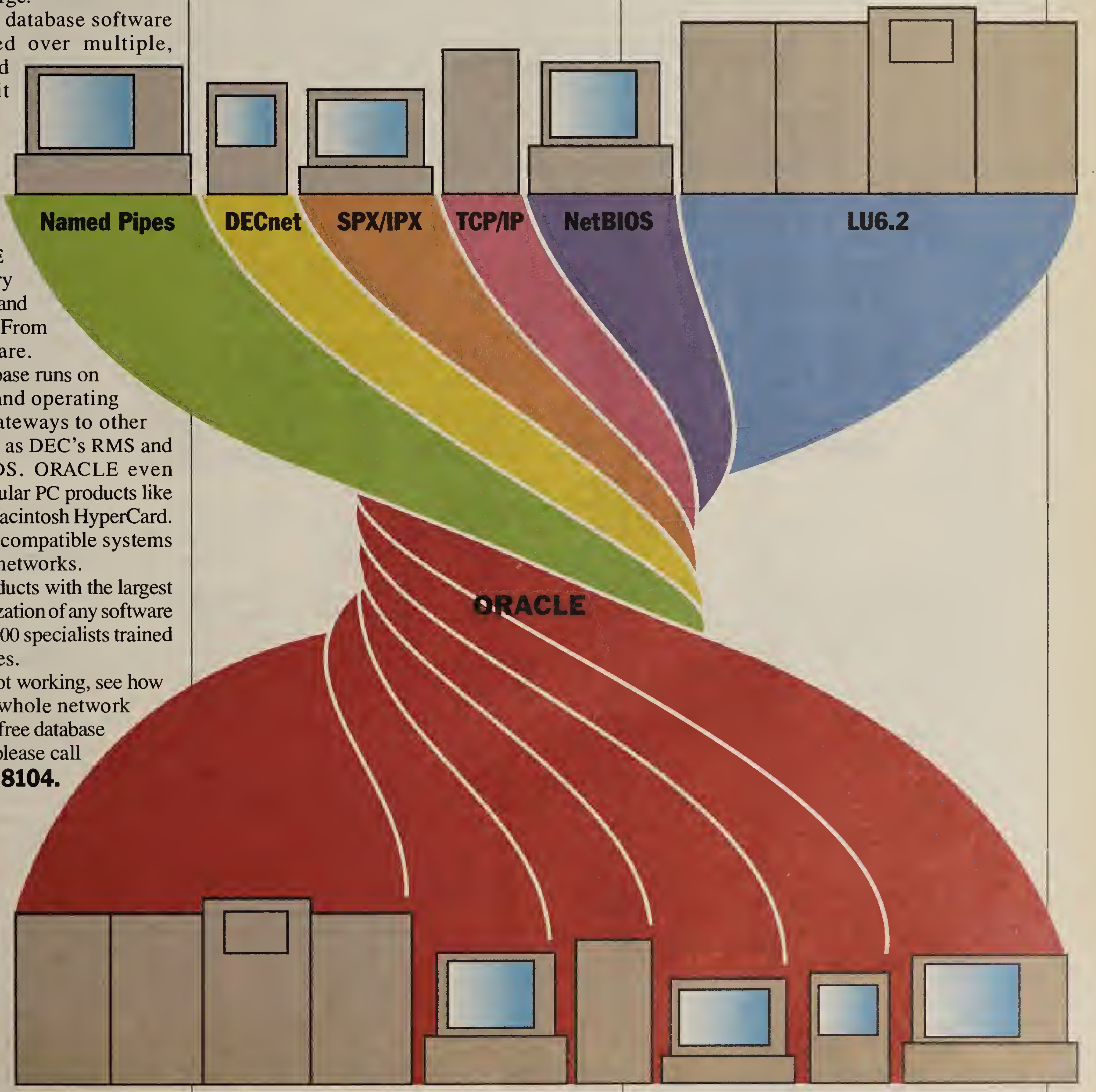

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An ounce of outsourcing and a dash of downsizing

BY CLINTON WILDER
CW STAFF

WINDSOR, Conn. — Outsource or downsize? A leading nuclear power equipment and services company is betting that the right reaction is a combination of both.

ABB-Combustion Engineering Nuclear Power announced last week that it will outsource its Control Data Corp. Cyber-based processing for the next two years while it rewrites most of its engineering applications for a network of Hewlett-Packard Co. Apollo division workstations and servers. The outsourcing vendor is Power Computing Co., which provides processing services to many utilities operating nuclear power plants.

ABB-Combustion Engineering, a unit of Swiss industrial equipment giant Asea Brown Boveri, Inc., is one of a growing number of firms that views outsourcing as an interim step while migrating applications to new hardware platforms. Dial Corp., for example, is outsourcing IBM mainframe processing to Andersen Consulting during a five-year migration to Digital Equipment Corp. VAXs [CW, Jan. 29].

Interim outsourcing "is a mechanism by which you can effect that transition with less pain and effort," said Steve Sunderland, ABB-Combustion Engineering's director of nuclear information services. "It allows the company to focus on the main mission."

Sunderland's staff will retrain approximately 500 applications developers and end users to work in the Apollo environment. Ten Cyber operations employees will either leave the company or transfer to IBM mainframe-based operations in the same data center here, a company spokesman said.

Sunderland said that unspecified cost savings are expected "in the long run" by migrating to smaller platforms. "We wanted to provide more modern, cost-effective tools to our engineering community as well as our customers," he said.

Cyber-based applications that will be rewritten include nuclear, mechanical and fluid engineering, hydraulics and thermal analysis. The outsourcing of Cyber processing to Power Computing's Cyber 990 in Dallas began four weeks ago and was expected to be completed this past weekend, Sunderland said.

"It has been carried out in a very rapid manner, which is critical because of the cyclic nature of work load in this industry," he said. "We had to assure nuclear power station operators that they would be fully supported during the transition."

The outsourcing contract is a two-year pact with extension options. Power Computing may retain some Cyber applications after the downsizing is completed, a Power Computing spokeswoman said.

ABB-Combustion Engineering, which employs about 1,000 people, is a division of Stamford, Conn.-based Combustion Engineering, Inc. The parent company was acquired in January by ABB, the world's largest industrial equipment maker, with sales of $26 billion. Sunderland said the downsizing/outsourcing plans were hatched before the acquisition.

ABB-Combustion Engineering will continue to run its commercial corporate applications in-house on its IBM mainframes. Since the ABB acquisition, the information systems department is attempting to expand its services to ABB's North American operations, a spokesman said.

The outsourcing contract is Power Computing's second for Cyber processing. The first, with Charlotte, N.C.-based Duke Power, is not related to a downsizing plan.

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Mideast recruiters shrug off danger

When Saddam Hussein talks, not all Americans listen.

Despite the potential danger facing Americans in Saudi Arabia because of the possibility that Hussein will invade his Arabic neighbor, some American computer professionals are going through with plans to move and work there this fall.

John Leslie Sr., president of Houston-based Leslie Corp., an employee placement organization for U.S. companies doing business outside the U.S., said his company is still planning to send three computer professionals to Saudi Arabia this fall.

"One person backed out, but the others are still planning to go," Leslie said, adding that one of the three is scheduled to leave this week, while the other two will probably leave early next month.

"It's still business as usual for all the companies that we deal with in Saudi Arabia," Leslie said. "My guess is that many people in Saudi Arabia don't know how serious the situation is there."

Leslie Corp. places approximately 100 Americans in companies in Saudi Arabia and the Middle East each year, but Leslie said he is unaware of the status of Americans sent there by his company in the past, because he only claims responsibility for the Americans until they hit foreign soil. However, to the best of his knowledge, Leslie said, they are all safe.

MAURA J. HARRINGTON

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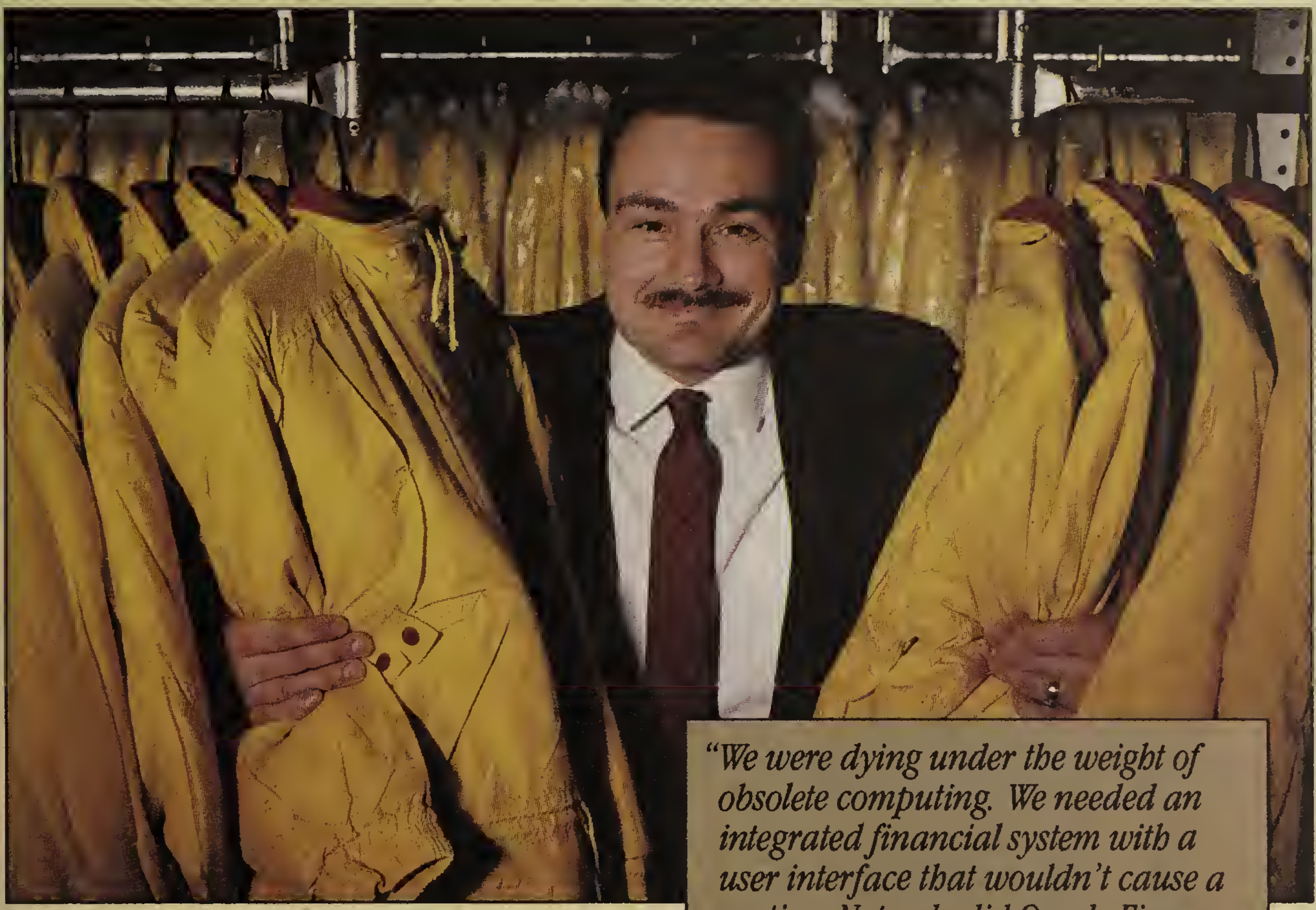

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		Sep 20*fg* Oct 16*c#1* Oct 17*gf*
	Newport Beach	Sep 18*fg*
	Riverside	Sep 25*cg*
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	San Francisco	Sep 13*ig* Oct 18*gv*
	Santa Clara	Oct 11*gs*
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DC	Washington	Sep 20*gi*
		Oct 12*#2* Oct 23*gv* Oct 31*gm**
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	Cleveland	Sep 6*g* Sep 7*d*
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Line-by-line ISDN debuts in Illinois

BY ELLIS BOOKER
CW STAFF

CHICAGO — Businesses here have been able to buy an Integrated Services Digital Network (ISDN) line for more than two years, but only as part of a multiline Centrex contract.

That changed earlier this month, with the approval of Illinois Bell's non-Centrex ISDN tariff by the Illinois Commerce Commission.

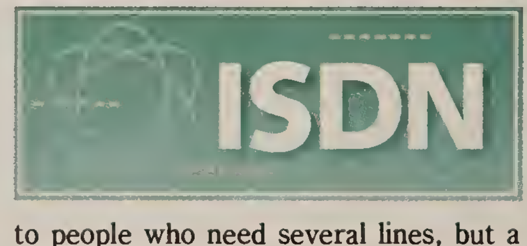
Illinois Bell hopes that its service, the first "line-by-line" ISDN in the nation, which permits a customer to buy as few as one ISDN line, will broaden the market for the all-digital networking technology.

To date, Illinois Bell has signed up more than 40 ISDN Centrex customers and deployed 26,000 ISDN Basic Rate Interface (BRI) lines. Currently, 30 of the phone company's 200 switching centers are equipped to handle ISDN.

A BRI line is composed of two 64K bit/sec. B channels for carrying data or voice and one 16K bit/sec. D channel used for packetized network signaling data. In some implementations, a portion of the D channel is available for user data.

Analysts said the latest Illinois Bell service will not have much appeal for large customers.

"I don't see users who already subscribe to Centrex [ISDN] as being strong candidates for this offering," said Victor Krueger, vice-president of the telecommunications industry service at Dataquest, Inc. Centrex arrangements, he said, are "almost by definition" restricted to people who need several lines, but a single-line tariff "opens it to people who want to experiment — to smaller users and personal computer users."



Meanwhile, ubiquitous deployment of ISDN rests on solving some technical matters, Krueger added. While connecting ISDN systems across different digital central office switches and connecting local ISDN networks across long-distance carriers have been demonstrated, these arrangements are atypical.

However, Ron Czaplewski, Illinois Bell's director of ISDN/Packet Business Services, said his firm is working with a variety of interexchange carriers to support long-distance ISDN connections. "Basically, we've got packet switching within the Chicago [local access and transport area] and are in processes of establishing ISDN-supported packet calls with interexchange carriers," he said.

Illinois Bell has unbundled its line-by-line ISDN service, offering a variety of voice and data configurations. One configuration permits packet-switched data over a B channel, which can then be attached to multiple incoming D channels. This arrangement could provide host access to telecommuting workers.

The cost of one BRI line, not including usage charges, is $22.66 per month, with a one-time installation charge of $94.50. Two regular business Touch-Tone lines would cost $18.78 per month with a one-time $148.50 installation fee; a videoconferencing configuration would cost $35.66 per month, plus installation fee.

Microsoft expands SQL Server's sales strategy

BY JIM NASH
and PATRICIA KEEFE
CW STAFF

In an effort to broaden the availability of the newly enhanced SQL Server Version 1.1, Microsoft Corp. announced last week that it will supplement its OEM distribution strategy with sales through distributors, resellers and third-party developers of database front ends.

Previously, SQL Server was available only through Ashton-Tate Corp., which at one point had exclusive retail distribution rights, and hardware OEMs, such as NCR Corp.

Microsoft is the first supplier of a database engine to team up with front-end developers. "Never has a database company sold a database component to another company to sell as part of their solution," said Dwayne Walker, Microsoft's senior product manager of SQL Server. "It lets the front-end developers sell a complete package without having to invest in building an engine."

It offers users one-stop shopping and lessens an already long to-market time frame. Developers such as Borland International, Dataease International, Inc. and Revelation Technologies, Inc. were expected to ship front ends one year ago.

The following developers of database front ends will resell SQL Server Version 1.1.: Sybase, Inc.; Ashton-Tate Corp.; Blythe Software, Inc., Dataease and Revelation (see story page 37). There are 25 front ends to SQL Server currently shipping, according to Walker.

The just released Version 1.1 enhancements include a Basic language interface, support for Microsoft's Windows 3.0 and 30 days of free support. SQL Server will cost $995 for five users and $995 for each additional unit of 10 users.

Clothing manufacturer W. L. Gore is a beta-test site for Dataease's SQL front end, which is slated to ship next month. According to Rajul Asthana, an associate at Gore, the interface fronts for SQL Server Version 1.0 were purchased through Sybase.

Asthana uses SQL Server to integrate Gore's local-area networks, Unisys Corp.'s A-10 mainframe and Digital Equipment Corp. VAXs. Novell, Inc.'s Netware 286 uses Named Pipes to link the LAN to the database server. Comparing SQL with its competitors, Asthana said Microsoft's semantic integrity, its ability to store common business rules on the database, puts it ahead of competitors such as Oracle Systems Corp.

Industry, IS execs share blame in government integration foul-ups

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Senior information systems managers in the federal government are increasingly seeing the importance of grand designs while shying away from trouble-prone megaprojects to implement those designs. At the same time, the IS executives blame the computer industry for many of the problems that have marked the government's ill-starred systems integration projects.

Those are among the conclusions from a survey of 20 IS managers conducted by the Federal Information Systems Integration (ISI) Committee of Adapso, the computer software and services industry association.

IS officials at 15 civilian and military agencies said huge systems development projects have fallen out of favor because they so often lead to huge cost and schedule overruns. Now, those failures and smaller budgets have forced a focus on incremental approaches in which manageable system pieces are brought up one at a time.

Nevertheless, the officials stand by the concept of developing comprehensive, strategic systems plans that support an agency's mission while expressing its technology vision.

"No one sees an alternative to grand designs and systems integration, but both areas have been much maligned," said Robert Steele, chairman of Adapso's Federal ISI Committee.

Adapso said most of the government officials participating in the on-site interviews expressed "great concern" about the quality of people provided by the industry on systems integration jobs. They complained about poorly trained people, "bait-and-switch" tactics and high turnover in vendors' project personnel. In particular, they noted the shortage of people able to lead systems integration projects. "The biggest issue for the future is training for project managers," one IS official said.

Some officials said the cumbersome procurement process and its attendant integrity laws have hurt government-industry dialogue. "Government officials are eager to talk to industry, but Congress has thrown a pall over communications," Steele said.

"Government officials feel industry needs to be more honest with them," Steele added. "They see industry becoming an extension of the government, telling them things they want to hear."

Steele said Adapso would try to use the results of the study to forge closer government-industry ties.

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Lotus 1-2-3 Release 3.1 wins early user praise

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Release 3.1, the semi-Windows-literate and significantly enhanced version of 1-2-3, is slated to ship within the next week or two, Lotus Development Corp. confirmed last week. Early returns from beta testers and developers gave the successor to the weakly received Release 3.0 an enthusiastic thumbs-up.

Still unclear, however, is how and when Lotus will migrate the enhancements in 3.1 to the rest of its multiplatform family, which is built around a 3.0 core.

"We don't really have a lot to say about it [at this time]," said a Lotus spokeswoman, who conceded that 3.1's imminent release does beg the question of Lotus' migration plans. Lotus plans to retire Release 3.0 once 3.1 ships.

Several beta-test users, however, happily answered questions last week about the revamped spreadsheet, which was first announced in May along with a cursory description.

Release 3.1 is being praised primarily because of the following enhancements:

- The addition of Impress desktop publishing capabilities, which reportedly surpass those found in the Allways technology available with the Release 2.01 and 2.2 generation of 1-2-3.
- A virtual memory management system that frees up space by swapping data off and on disks.
- Improved Datalens access, achieved by moving the memory-intensive search-and-retrieve activity off the client and onto the server.

At Starkist Seafoods in Long Beach, Calif., Benjamin Goldfarb, manager of personal computing services, plans to upgrade the 75 or so users of Release 3.0 to 3.1. "That's a slam dunk," he said, praising 3.1's what-you-see-is-what-you-get capabilities.

"In 2.2, you had to flip-flop between two different screens — one for graphics or formatting, and the other to enter data into a spreadsheet," said James D. Brown, an accounting consultant at Amoco Corp. in Chicago. But not anymore: "It's a major improvement," he said.

Other pluses, according to Goldfarb, are the integrated mouse support and a "mini" word processor: "It gives you the ability to truly integrate text and graphics. You could do it under 3.0, but it was a bit hokey."

Although the product will look 100% different to the user, the revamped package not only preserves keystroke memory but will offer a "high degree of compatibility" with 1-2-3/G, product manager Paul McNulty said.

In a nutshell, Release 3.1 will allow users to run the character-based spreadsheet in a window and copy data to Microsoft Corp.'s Windows' Clipboard. It is the first DOS application to support Microsoft's DPMI extended memory standard, and it is launchable from an icon.

While compatible with all three modes of Windows Version 3.0, 1-2-3 Release 3.1 will not support key Windows 3.0 features, such as Dynamic Data Exchange and a graphical user interface. Users will have to wait for 1-2-3/Windows.

This latest version of 1-2-3 is also significant from a Lotus strategic point of view.

Lotus admittedly miscalculated user interest in Windows, while overestimating demand for OS/2. Release 3.1 gives Lotus a foot in the Windows door by at least letting users access 1-2-3 from an icon. It should also buy Lotus some breathing space until 1-2-3/Windows is ready to ship.

It is already too late at Lithonia Lighting in Atlanta. Informations Systems Vice-President Jeffrey Kernan has already begun the switch to Microsoft's graphically oriented Excel spreadsheet. "Lotus missed the boat with a memory-intensive Release 3.0," he said.

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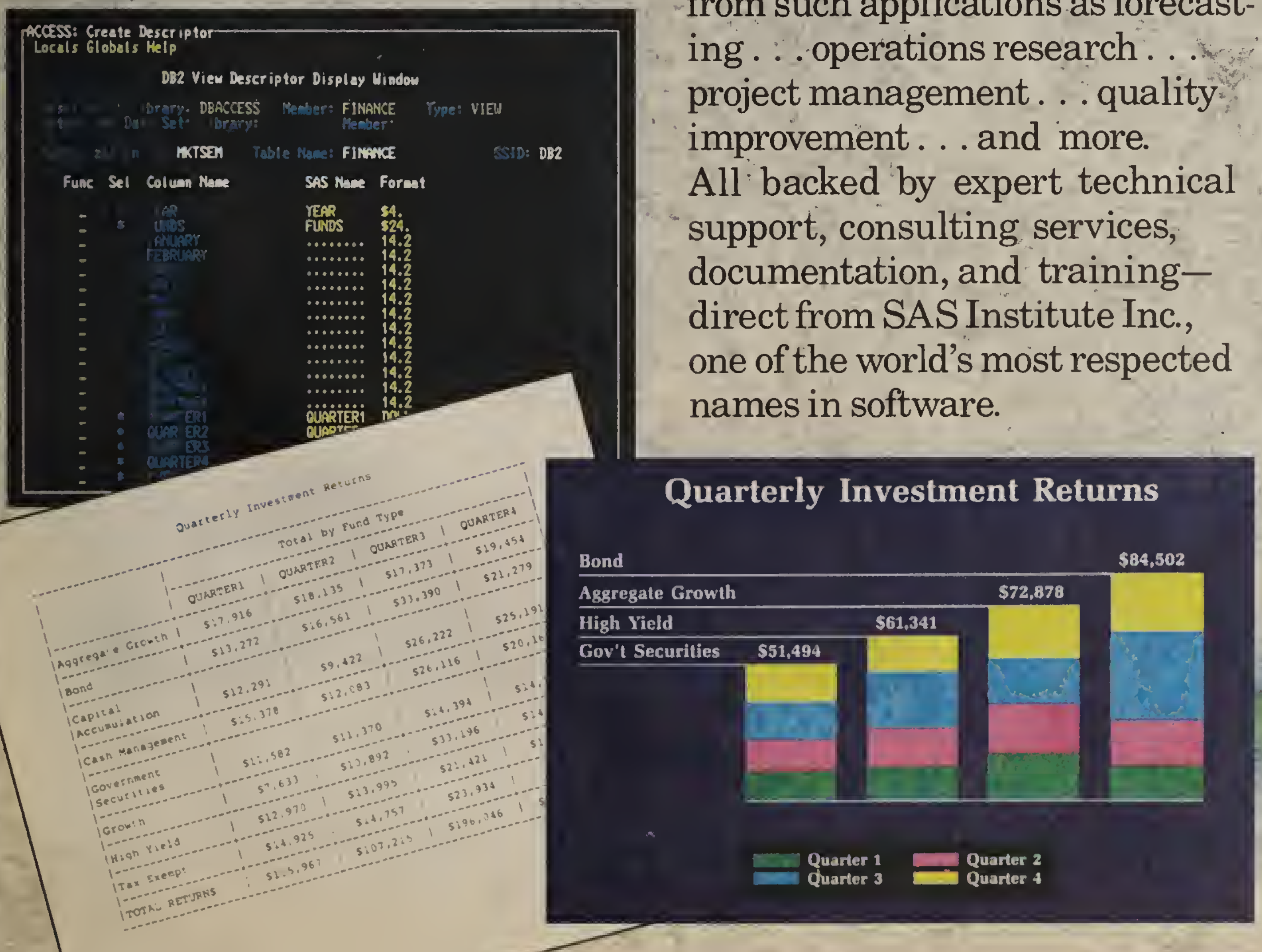

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Quarterly Investment Returns

Total by Fund Type

	QUARTER1	QUARTER2	QUARTER3	QUARTER4
Aggregate Growth	$17,916	$18,135	$17,373	$19,454
Bond	$13,272	$16,561	$33,390	$21,279
Capital Accumulation	$12,291	$9,422	$26,222	$25,191
Cash Management	$15,378	$12,083	$26,116	$20,16
Government Securities	$11,582	$11,370	$14,394	$14,
Growth	$7,633	$10,892	$33,196	$14
High Yield	$12,970	$13,995	$21,421	$1
Tax Exempt	$14,925	$14,757	$23,934	
TOTAL RETURNS	$105,967	$107,215	$196,046	

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ADVANCED TECHNOLOGY

TECH TALK

Instead of nukes, viruses

■ The Department of Defense (DOD) wants to finance a study on "commando viruses," designed to infiltrate an enemy's computer via radio transmission or telephone lines. The DOD has received 19 proposals from software companies out to get a contract that is valued at $50,000 in the first phase and that eventually could be worth millions of dollars. Some experts think that a military-grade virus would amount to much more than Tempest in a teapot. The U.S. is much more reliant on computers than Iraq, for example, and thus more vulnerable if a commando virus were to backfire.

Seeing the light

■ Researchers at IBM's Almaden Research Center in San Jose, Calif., have announced the development of a compact laser that could potentially pack four times more data onto optical discs than is now possible. The laser emits blue light, which has a shorter wavelength than infrared and thus can be focused more precisely. The result is that more data can be encoded on an optical disc. Up to now, it has been difficult to make a reliable and efficient blue laser. The scientists were able to convert the infrared light from the colors of a conventional laser into blue by passing the light through a potassium niobate crystal.

A lively animation market

■ Computer animation will grow faster than a video arcade machine can swallow quarters, according to market researchers at Frost & Sullivan, Inc. The market seers predict that sales of computer animation hardware and software will amount to $50 billion worldwide by 1994. Network monitoring systems for telecommunications, plant processing monitoring systems and multimedia home computing, including videotex services, will be the driving forces behind the growth, the firm said in a recent study.

The real face of mankind's past

Computer scans reveal that Australopithecus africanus isn't quite the missing link

BY KIM S. NASH
CW STAFF

Tapping keyboards and scrutinizing the blips and lines on a computer screen seem worlds away from the traditional hot and dusty anthropology dig. But Washington University Medical School scientists Glenn Conroy and Michael Vannier have made some big discoveries about human origins while working in the clean quiet of the Mallinckrodt Institute of Radiology in St. Louis. They have found, for example, that your mother had a relatively small brain, big nasal passages and chunky, primitive-looking teeth.

Don't take it personally, though. It is not your mother, exactly, whom they describe but rather *Australopithecus africanus,* a two- to three-million-year old human-like species thought to be the predecessor — mother, if you will — to all of us in the modern *Homo* line.

Using homemade software, an Ethernet network of Digital Equipment Corp. Microvaxes and scanning equipment from Siemens Information Systems, Inc., Vannier and Conroy did something no one had done before: They peered inside the rock-filled fossil skull of the Taung baby, an *A. africanus* specimen named for the region in South Africa where it was found.

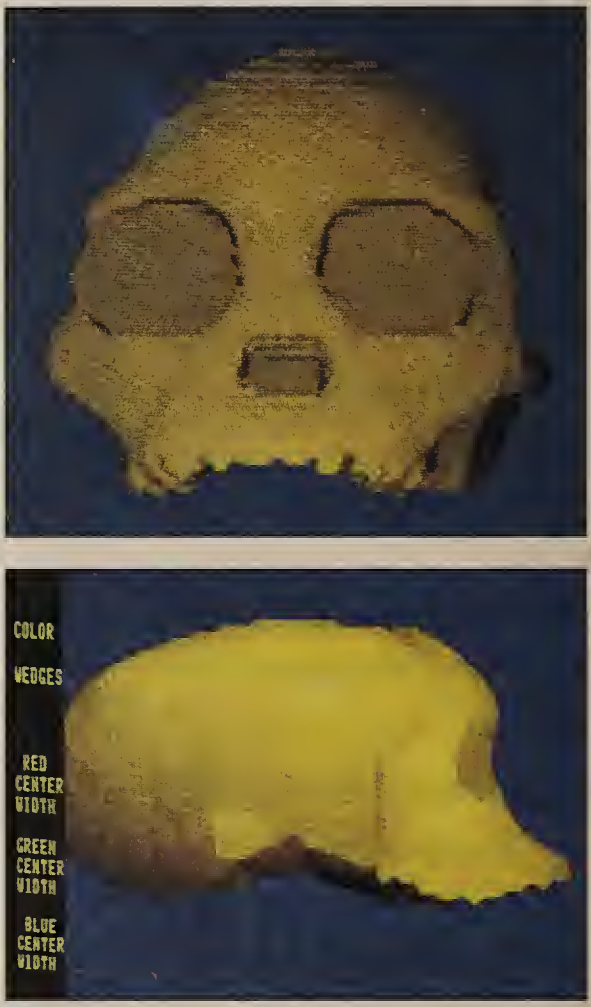
Since 1924, scientists have studied the Taung child skull remains but have previously been unable to examine its underside because it is packed with ancient stone and sediment. The inner surface of a skull can hold many important clues to human evolution, such as brain shape and size and blood flow paths. Conventional X-rays cannot penetrate thickly mineralized fossils, according to Vannier, so the only way anthropologists could possibly have surveyed the innards of Taung would have been to crack the one-of-a-kind find like a coconut.

By electronically sandwiching more than 40 computerized tomography pictures into a single three-dimensional image, they modeled the full head, inside and out. Tomography is a medical procedure in which doctors typically investigate the inside of a solid object, such as an arm or leg, by sweeping an X-ray over an electronically predetermined cross-section of it, yielding a two-dimensional likeness. Conroy and Vannier did the same thing on the fossilized skull, but worked their way across the entire object with a series of views.

Once these images were on-line, they could be electronically dissected, sliced into cross-sections for detailed study or manipulated in ways otherwise impossible without damaging the specimen, Conroy explained.

That is no easy feat. The densest material that scanners normally can penetrate is living human bone, which has less than half the density of some fossils, said Vannier, a professor of radiology. The initial series of tomography scans was fuzzy and unusable, leading the scientists to experiment with immersing the skull in a tub of water inside the scanner. With a little fine-tuning, this technique gave the doctors a sharp new view of our past, leading them to contradict some long-held and weighty theories of human evolution based on speculations.

"We saw thin bones and patterns of dental growth that no one had ever seen before, and they were distinctly more primitive than some people thought previously," Vannier said. The tomography pictures have convinced many theorists of human evolution to revise their earlier opinions that *A. africanus* was more human-like than apelike. For some scientists, this work cements the theory that the *Homo* line emerged later in time from a transitional creature that resembled both humans and more primitive beings — and not from an earlier being more like us, as was once thought.



Researchers at *Washington University Medical School 'cracked' this skull's secrets*

Stone Age, Information Age

While anthropologists now turn to modern technology to get a glimpse of our past, many scientists do not know where to look for software tailored to this kind of research. Indeed, breakthrough findings like those of Washington University Medical School scientists Glenn Conroy and Michael Vannier are rare, in part because of a lack of commercial software, said Bill Wilson, academic computing specialist at Northern Arizona University in Flagstaff. "Virtually no applications exist for our discipline. Even though that's probably changing, we still haven't come far," he said.

In fact, Conroy and Vannier used a combination of in-house scanning software, originally developed for use during surgery, and imaging products from the National Institute of Health. Even now, six years after Conroy and Vannier's first experiments, there remains a serious lack of anthropology-specific applications.

To answer demand from human origins researchers for information on software, David Givens, editor of "Anthropology Newsletter," started "Soft.Where," a column designed to "highlight some of the more exotic stuff." Products are available, he said, but they are mainly on the unpublicized private circuit.

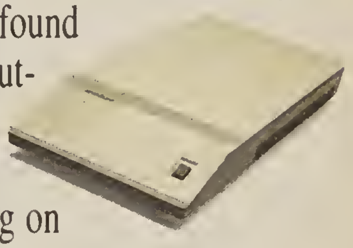
John Omohundro wants to change that with Mystery Fossil, a program he wrote using Apple Computer, Inc.'s Hypercard on a Macintosh. The anthropology professor at the State University of New York at Potsdam uses Mystery Fossil as a teaching aid to make introductory students "feel like they're really doing anthropology," Omohundro said. Mystery Fossil challenges students to identify three digitized photographs of unnamed fragments of prehistory by querying the program's database containing information on eight other well-known fossils and then comparing and contrasting their findings.

KIM S. NASH

NEC modems keep information moving as if your life depends on it.

In a 911 emergency, to risk a communications breakdown is to risk a life. So if you don't want to take any chances, make sure your modem can handle the pressure in a crisis.

In Florida, NEC's I Series Intelligent Chassis System is now helping coordinate the life-saving efforts of Lake County's 911 services. The county chose the system after tests found NEC's I-Chassis modems out-performed others. And they've proved their round-the-clock reliability by being on the job there for more than a year without a single failure.



Since NEC modems are designed to rapidly and accurately transmit huge volumes of data, Lake County's 911 operators can now quickly pinpoint accident locations, provide traffic instructions, find patient medical records, and dispatch back-ups when needed. And because NEC's Dual Modem Card links 911's control center to NEC Dial-up Modems in remote locations, Lake County feels it has found the best data networking solution attainable.

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EDITORIAL

Glass houses

Every compulsion is put upon writers to become safe, polite, obedient and sterile.
Sinclair Lewis

Recently, articles have appeared in some big daily newspapers and in magazines calling into question the "mission" of those publications lumped under the broad and increasingly anachronistic category of "computer trade press."

By focusing on specific publications, the articles have raised doubts about the veracity of the reporting that has appeared from time to time in the computer press. Is it really objective? To what extent is it influenced by advertisers (almost assuming that there is some measure of influence)? Are product reports and reviews serving the reader or the publisher?

The issues raised in some of these articles do contain some compelling evidence to justify the questions. One piece in *The Washington Post* cited a review of a landmark product in a leading personal computer magazine. The reviewer, according to the article, was also a paid consultant for the vendor of the product. The review was glowing.

Another article, this one in *The New York Times,* singled out a Macintosh magazine for its objective reporting on a key vendor — namely, Apple. It was almost as though objective reporting in the "trades" was something out of the ordinary and thus worthy of special mention. The author even went so far as to attribute the magazine's recent successes to its editorial integrity and objectivity. Gee, are there other ways of succeeding we don't know about?

There is no question that objectivity can take a back seat to editorial pandering at certain publications. They're easy to identify because they usually go out of business before too long. Readers don't read them, they do poorly on readership studies, and advertisers refuse to spend money on them.

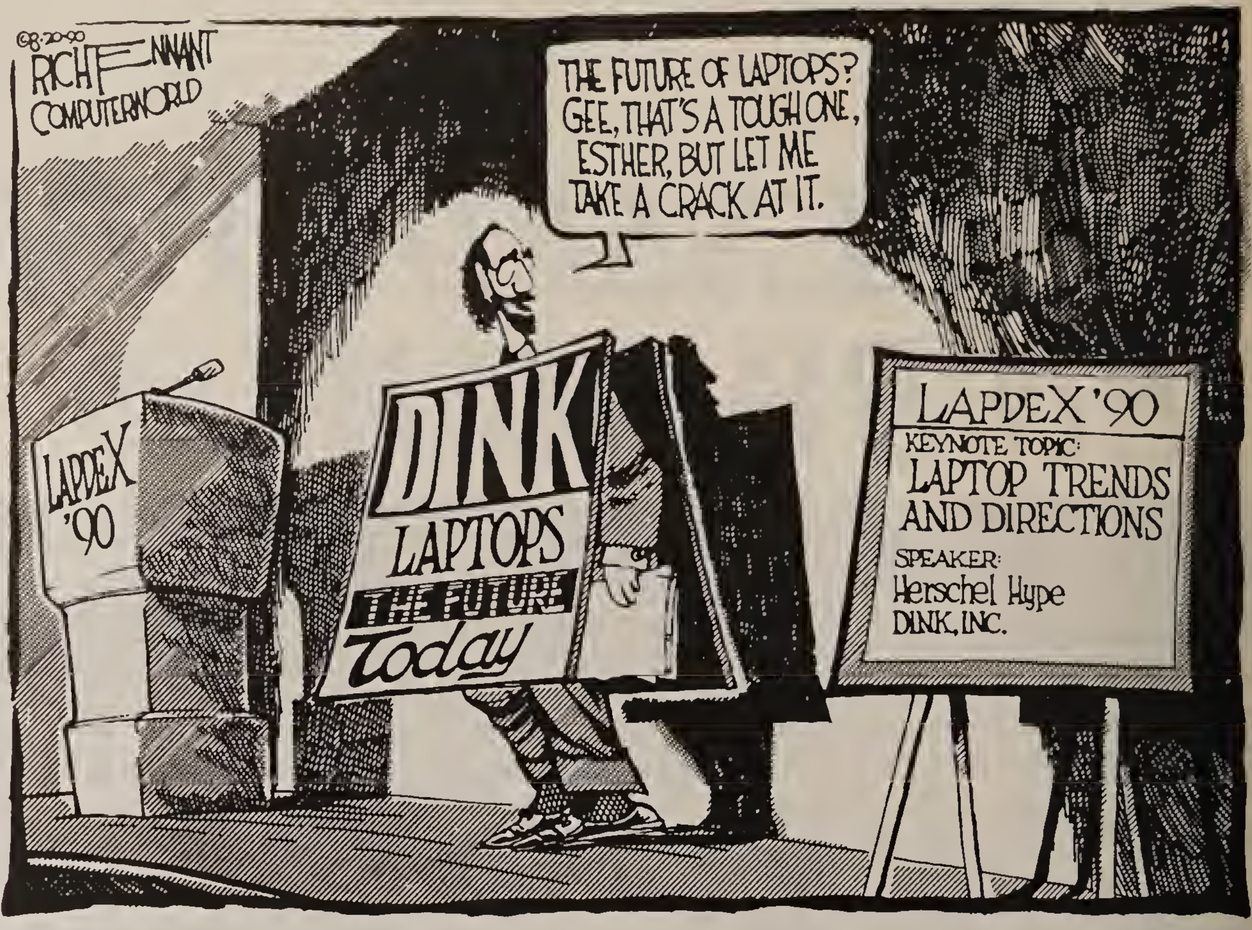
However, there is something a tad smug about reacting to objectivity in "trade" publications as though it were an anomaly. Moreover, it smacks of hypocrisy.

For one thing, there are countless stories that appear in the daily and business press that are gleaned directly from articles in the computer press. Objectivity doesn't seem to be a problem there.

For another, the daily and business press has been hiring very aggressively of late from the so-called trades, particularly to bolster coverage of information systems and the computer industry. No problem there, either.

So why, then, does "trade press" veracity and objectivity become an issue at all? Isn't it equally an issue for all serious business publications?

Apparently, there are many people who see the twin matters of ethics and responsibility as needing more attention in certain quarters than in others (such as their own). For these people, we suggest that what's good for the goose is good for the goose.



LETTERS TO THE EDITOR

No vision

Your article "Blind IS managers defy career odds" [CW, July 9] is quite uplifting. The statistics you mention verify what I have seen: Blind information processors tend to enter the workplace at the bottom rungs of IS and stay there.

Although great advances have been made in the areas of screen readers, optical scanners and voice synthesizers, a dearth of software exists for blind persons. Software vendors, for example, persist in offering products that only serve the sighted public. Graphical user interfaces, which feature pop-up windows and mouse support, offer impossible hurdles for the blind. Why not offer both graphical and pure-text versions?

It's ironic that mainframe and minicomputer applications tend to be the easiest for the blind to use because of the "blandness" of their interfaces. The PC environment has the potential power to liberate more handicapped people. However, without the commitment of software vendors, no amount of "high motivation [to] overcome the physical obstacles" of blindness will resolve this situation.

Congratulations to Jim Fleming, Michael J. Mady and McKinley Young for beating a system that is rife with discrimination.

Gerald J. Jurrens
Kingston, N.J.

No meddling

I share Mitch Betts' concern for the future of the U.S. electronics industry [CW, June 25], but not his eagerness to surrender that future to federal bureaucrats.

The HDTV controversy that he highlighted illustrates why government should not be entrusted with technology policy. Each of the several HDTV proposals calls for incremental enhancement of antiquated analog technology — technology that predates solid-state circuits. In fact, television is one of the last refuges of vacuum-tube technology. Digital flat-panel display screens are already displacing CRTs in personal computers and workstations. Moreover, "digital" has become the technology of choice for transmitting, processing, storing and presenting recorded sound, structured data, graphics, text and plain old voice communications. With the arrival of digital video-interactive technologies, all-digital broadcast TV is possible today. Thus, HDTV is already obsolete.

If the U.S. needs a coherent policy for the electronics industry, it needs one that is fashioned and controlled by that industry — one that electronics firms will bet their futures on, and with their own money. A government policy targeting the electronics industry would surely be far worse than none at all. Let us hope that a civilian counterpart of the spendthrift DARPA never gets a chance to waste a nickel.

Dave Nelson
Garmisch-Partenkirchen,
West Germany

No accident

You have a chart in a recent issue [CW, Aug. 6] that purports to show how computer-related fraud and abuse is discovered. While the chart attributes 32% of discovery to "accidents," it is silent on the role of external controls — those relying upon relations with customers, vendors, and fiduciaries. These controls include the routine exchange and reconciliation of statements and confirmation.

In fact, if internal controls do not prevent the abuse, it is most likely to be discovered by the operation of these external controls. Much of the discovery that is attributed to "accident" is actually the operation of these controls. The operation of these controls is so subtle and automatic that these controls are often beneath our level of notice. Nonetheless, management has a right to rely on them. They are very independent and reliable. Their one disadvantage is that they operate late and publicly.

William Hugh Murray
Executive Consultant,
Information Systems Security
New Canaan, Conn.

No chance

Three cheers to Marty Gruhn on her article, "Why high-tech companies fail from their own success" [CW, July 16]. I found this to be a great dose of reality compared with some of the "pie in the sky" attitudes held by some of today's high-tech firms.

Gruhn leaves us with an interesting thought: What would happen if marketers had to go out and hit the pavement and actually speak with their customers? What a scary thought!

Peter Giroux
Howie & Associates, Inc.
Roswell, Ga.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor In Chief,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail:* COMPUTERWORLD.

Business computing gets stuck

DAVID LIDDLE

The computer industry is built on the vision of transforming the way we in which we work. It has long been an article of faith that computers are destined to banish the tedium and inefficiency of business routine in favor of a newly dynamic, interconnected workplace.

That vision contains a kernel of reality, and the basic technologies for its fulfillment exist today. But after years of one blockbuster technology advance after another, a huge gap remains between the vision and today's reality.

Wait a minute. What about scientific and research computing, where ever-faster computers and workstations are fueling breakthroughs in other fields? And don't large-scale computers enable big enterprises to crunch numbers and process minute details in staggering volume? True enough. But in the corporate office — the place for both the greatest potential and greatest need for technology solutions — computer-generated information is as likely to be a burden as an asset. The vision of a workplace transformed and enriched by a computer on every professional's desktop is still a pipe dream.

There is a snowballing perception in the business world today that the tangible benefits and value promised by office automation have not been delivered. A recent study in *Fortune* magazine concluded that the bottom-line payback from office automation is essentially zero. Corporations spend thousands of dollars per machine annually on computer purchases, maintenance, support and training. But what value are they buying?

My colleagues and I have a running joke about the big four computer applications: spreadsheets, word processing, spreadsheets and word processing. Not a knee-slapper, but nonetheless wry recognition that business computing remains stuck at a far-too-basic level. On average, a Fortune 500 employee equipped with a personal computer uses only one or two software products regularly. And those computer users represent only about 20% of all the office workers in those companies.

A brief walk through the offices of nearly any big company will confirm that 80% of business professionals are still working without a significant computer resource at hand.

Where is the demand for computers to serve this 80%? Not there. To justify new computer investments, people need new and different kinds of software.

Spreadsheets and word processors were catalysts in the widespread acceptance of PCs. But, conceptually, they are backward-looking — they simply computerize single, traditionally manual office tasks. Their limited capabilities cannot fulfill our vision of what computers can mean to the professional.

Niculae Asciu

To realize that vision and rejuvenate the computer software industry in the process, developers and marketers must rethink their assumptions and work to create products of real value to the business world. They must focus on that unautomated 80% of office workers who need more flexible computer solutions.

The first essential is to extend the base of usable data — encompassing text, numbers, graphics and images. People must have easy access to a widespread world of information and must be able to organize and analyze it easily.

To transform that world of data into useful information, people need more broadly functional suites of software tools that can handle the varying demands of different individuals. These tools must be built on consistent conceptual models, allowing them to shift seamlessly from one program to another and use different programs in the same natural, intuitive manner.

Each new program today typically imposes a separate learning curve. It's no wonder so many people just use one or two applications; they want to succeed at their jobs, not become computer experts.

A telephone company study done more than 60 years ago, projected a need for 100 million telephone operators by 1950. This absurd scenario motivated it to rethink telephone systems from top to bottom. Now, as we use the telephone every day, we intuitively perform 95% of the tasks operators used to do.

Every company regularly confronts situations that are critically important one week and all but forgotten the next. In the Fortune 500 alone, we might project the need for 5 million new programmers to handle these ad hoc programming jobs. But the practical solution is to give those business users who understand their business issues the computer tools to apply to their problems.

We simply need a new approach to doing business. As a start, vendors might try talking and listening attentively to their customers, rather than to one another, the press and perhaps their retailers. Real customer communication is the first and most essential step toward developing effective computing solutions. And technology companies must more actively support business customers — and that means going beyond the 800 hot line that comes complete with a busy signal.

To attract and satisfy corporate customers, we in the industry must apply our technologies and our imaginations to create a new generation of business computing tools. We must take risks in product development, and if necessary, charge higher prices to support those risks. We must abandon today's too-common "break the shrinkwrap and you own it" mentality, emphasize communication and customer support and deliver solid value and satisfaction.

Liddle is president and chief executive officer of Metaphor Computer Systems, Inc.

Without a data model, everything falls down

EFREM MALLACH

Steve got a recipe for disaster last month, disguised as a proposal for a new cost accounting system. The proposal came from one of the biggest management advisory firms in the world. It was most impressive, with engraved letterhead paper and custom-printed divider tabs. It also weighed two pounds. It included resumes of five partners and three experts who have each published at least one book in the field. The conceptual design phase alone was estimated at nearly $750,000. The proposal probably cost more to write and produce than most of us earn in three months.

This proposal was put together by cost accounting experts. They put everything they knew about cost accounting into it. It lacked just one thing: input from a person who was once stuck with maintaining a complex system that was not based on a coherent data model. Without that input, and especially without the data model, it was a blueprint for a house of cards that could tumble down at any moment.

Why is a sound data model so important? Because programs come and go. Requirements change. Businesses evolve. Technology makes new functions possible. But what stays around for decades, what information systems managers most dread to change, is the database. As Daniel Appleton at the University of Indiana has pointed out, the usefulness of applications peaks and declines long before that of the data they hold.

The distinction between data modeling and database design is crucial. Data modeling has to do with business, not with computers. It deals with entities that exist in a business, with relationships among these entities and with attributes that define the entities. Databases may come in various forms. The data model is the same.

One of the tasks set in Steve's project proposal is "integration strategy." This task includes, among other things, surveying the capabilities of existing packages.

How to check them?

On what basis are packages to be evaluated? The proposal waxes lyrical about what the system is supposed to do. Yet there is not a word about the data it will use while doing it. If anyone is ever going to worry about the underlying data model, it's not until much later in the technical design phase of the project. That's far, far too late. One cannot assume that any functionally adequate package is based on a suitable data model.

The likely outcome of this situation is clear. A package will be chosen — and modified or extended as needed — to meet the stated functional requirements. As soon as something that wasn't in the stated requirements comes up — something that the cost-accounting experts didn't know about — disaster will strike. The applications will have a roadblock precisely where new traffic must flow. The database will turn out to have put two concepts into one data structure, or one concept into two data structures. The cost of fixing matters, so small at the conceptual design stage, will then be astronomical.

This happens all the time when systems are designed by functional experts, be they cost accountants, industrial engineers or market planners. Such people focus on the applications. After all, they reason, it's the applications that do the work. The data will be whatever the application needs. It just goes along for the ride.

This line of reasoning led a Western Massachusetts manufacturing company into Chapter 11 in early 1988. It picked a manufacturing resource planning (MRP) package by following the well-intentioned advice of its hardware vendor's MRP experts. Everyone looked at the functional capabilities of the package, but nobody ever bothered to look at its underlying data model.

The data model turned out to be totally unable to cope with a few features of the firm's production process. By the time the real issue was discovered — delayed first by a hardware upgrade that was supposed to fix things, then by frantic efforts to apply software Band-Aids — it was too late. The customers had gone elsewhere. All the manufacturing firm could do was sue the hardware vendor.

The best way out of this fix is not to get into it. Any application of importance *must* be based on a sound data model. The foundation that rests on the data model is the database itself. The visible applications cannot possibly stand unless the other two are firmly in place.

I've sent Steve a letter urging him to develop a good data model for his cost accounting system proposal. If he doesn't, his recipe for disaster will turn into a most unpleasant meal.

Mallach is a faculty member at the University of Lowell in Lowell, Mass., and a consultant to users and vendors.

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COMMENTARY

Jean S. Bozman

They're still saying OOPs

The world of object-oriented programming and the world of procedural code, including the Cobol and C languages, have an uneasy coexistence. Few products attempt to bridge the gap between the two worlds — with the possible exception of the hybrid C++ programming language.

However, leading-edge users and analysts now tell us that these two distinctly different technologies should be stitched together through industry-standard interfaces.

Why won't those bleeding-edge people leave us alone? The staid procedural code of Cobol is familiar, and it certainly has staying power; most information systems organizations have used it for a quarter of a century or more. But object-oriented programming (OOP) presents many advantages, including quick development, reusable code and reduced maintenance.

Moreover, object-oriented databases offer users a new IS dimension — the ability to store drawings, images and sounds as "objects" rather than as long strings of 1s and 0s. That would aid immensely in computer-aided design and manufacturing, computer-integrated manufacturing, petrochemical and even military applications. According to some industry analysts, the benefits are so compelling that OOP systems will overtake procedural systems by the year 2000.

Continued on page 34

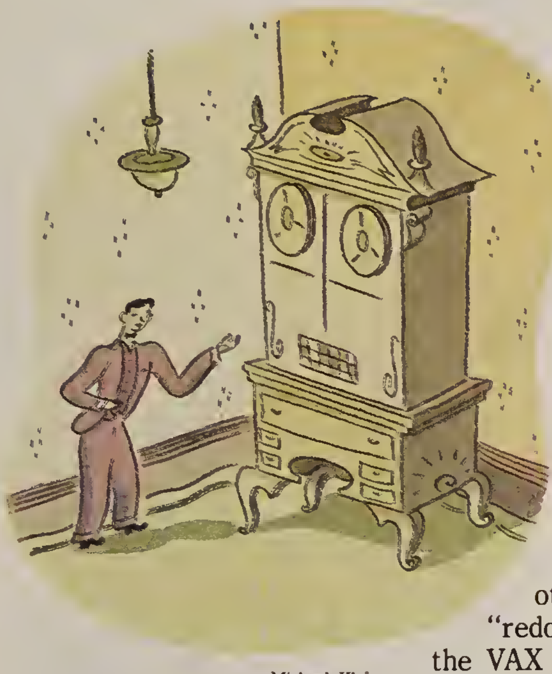
FEATURE: OLDER MACHINES

One person's obsolete is another's classic

BY JUDITH FINN
SPECIAL TO CW

Unswayed by the lure of state-of-the-art technology, many users still have high praise for machines that others have termed obsolete. Digital Equipment Corp. Decsystem-10s, 20s and early-model PDP-11s, as well as IBM System/36 minicomputers, continue to satisfy the front-line needs of a variety of users, despite vendor urgings to upgrade.

"These [machines] are like a 1960 Ford," says Michael Erbschloe, executive editor at Computer Economics, a publishing company based in Carlsbad, Calif. "If you can get the parts, they can last forever." Erbschloe says these [older] systems continue to run and do a good job because "they were built well, with tested technology and minimal parts."



Michael Klein

Some users cite low cost, continued support and software loyalty as reasons they have stayed so long with what they have in place. Others note that they are tied into ongoing leases.

For Art McClinton, lead scientist at Mitre Corp.'s research laboratory in McLean, Va., the costs simply do not justify a complete conversion from the PDP-11 Model 70, which the organization currently uses to run communications packages. While the systems engineering firm's lab has upgraded its several other PDPs to VAXs, "redoing [this system] on the VAX is just more money than I would save," he says. Two years ago, Mitre estimated that it would cost "a couple of hundred thousand dollars" to convert its system, according to McClinton.

The simple fact is that upgrading can be painful from an economic standpoint. Martin Rabenovets, president of System/36 software development firm Computer Systems Consultants, Inc. (CSCI) in Landover, Md., says he cautions his clients to examine their needs carefully before making a decision about whether to migrate to new architectures.

If the current system is getting the job done, Rabenovets claims, it would be foolish to get new equipment simply because it's new. "We know what the System/36 can do. Does the added functionality [of the Application System/400, the System/36 follow-on] justify the added cost?"

"You have to consider the incremental cost of an upgrade," cautions Terry Shannon, director of DEC Advisory Services at International Data Corp. (IDC) in Framingham, Mass. He notes that users sometimes overlook hidden

Continued on page 32

A 4M-bit DRAM come true

BY MARYFRAN JOHNSON
CW STAFF

MILPITAS, Calif. — System Industries, a supplier of data storage subsystems for Digital Equipment Corp. computers, last week introduced a 128M-byte storage module that quadruples the capacity of its Megaram family of solid-state disks.

Using new 4M-bit dynamic random-access memory technology, System Industries increased the storage capacity of a single quad-size board from 32M bytes to 128M bytes, for a maximum of 2G bytes per system. The firm also dropped the price of its 128M-byte Megaram-SDI drive by 26% to $73,900.

At $577 per megabyte, the System Industries module is comparable to DEC's ESE20 solid-state disk, which holds 120M bytes per drive for $110,000, or $916 per megabyte. The DEC drive uses 1M-bit DRAM chips rather than the 4M-bit chips.

Over 100% improvement

One System Industries customer — Lashco, Inc., a stock-trading service company based in Chicago — reported a 150% improvement in throughput for its on-line transaction processing application after adding a Megaram-SDI disk to its DEC VAX 8550.

"[System Industries] is using more recent technology in the same board design by putting a chip with four times the capacity into the same configuration," said Mike Casey, a storage analyst at Gartner Group/Infocorp in Santa Clara, Calif.

"From an end user's point of view, anything less expensive is good," he added.

Casey noted that in the solid-state disk market, the difference between $914 and $577 per megabyte may be "a relatively small advantage, because this stuff is so expensive that people don't wants gobs and gobs of it."

Outside of the IBM market, there are still few signs that 4M-bit chips are readily available in large quantities, said Robert Abraham, vice-president of Freeman Associates, Inc., a market research company in Santa Barbara, Calif.

"There is a bit of sex appeal to having the 4M-bit DRAM chip, and on [System Industries'] part, that's very good positioning for future market acceptance," Abraham said. "Something I suppose any potential customers should be concerned about, however, is what is the source of the chip? What do these guys know that no one else knows?"

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Radio Free Europe updates IS image

Ex-Cold Warriors overhaul systems for success as modern broadcasters

ON SITE

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — For more than 35 years, the mission at Radio Free Europe and Radio Liberty, Inc. was to dodge jamming signals from Communist governments and broadcast news reports about local politics and culture to people behind the Iron Curtain.

Now, the Iron Curtain is gone, the jammers are turned off and Radio Free Europe/Radio Liberty is being transformed — with the help of the information systems department — from an instrument of the Cold War into a modern, competitive broadcasting company.

For example, the three-year modernization project has created a fully computerized news gathering and editing operation, called Newswire 2000 — running on Digital Equipment Corp. VAXs and a customized database management system — that replaces the old-fashioned system of dictation and hard copy.

"We were not as competitive as we should have been with other major international broadcasters, such as Voice of America, British Broadcasting Corp. and Deutsche Welle," explained Robert Short, director of IS. "Whereas they could put out a newscast from hour to hour, it used to take us as long as four hours from the time we brought the news in, processed it . . . and sent it out to the broadcast departments to then translate into their own languages."

Instead of two live newscasts in an eight-hour shift, Radio Free Europe/Radio Liberty now produces hourly newscasts in 17 languages. Correspondents use desktop or laptop computers to file reports, which, along with wire service feeds, wind up at the broadcaster's main data center, located in Munich, West Germany.

Newswire 2000 operates on a pair of DEC VAX 8550 systems, running custom-developed relational database management software from Nexus GmbH in Dachau, West Germany.

The IS modernization plan also included the company's administrative operations. "In fact, that was foremost in the eyes of executive management because they needed to get a handle on corporate assets and personnel matters," Short said.

The IS department began with an overhaul of the personnel system and then added modules covering employee benefits, payroll and other administrative functions. "The personnel management system formed the nucleus of our relational database system. From there, we feed information to all of the other systems that require it," said Allan Capon, IS director for U.S. operations.

RADIO FREE EUROPE • RADIO LIBERTY •

For example, the personnel system is linked to a housing management system because the company leases about 550 housing units for employees in Munich in order to cope with a severe housing shortage there. Consequently, personnel records also include details on the size of the employee's family so that it can be matched to appropriate housing.

Developing the personnel system "turned out to be a lengthy exercise [of about 18 months], because we discovered we weren't just a normal company dealing with normal personnel issues," Capon said.

Radio Free Europe/Radio Liberty, secretly funded by the Central Intelligence Agency until 1971, is now a congressionally funded private corporation with a $190 million budget. It is headquartered in Munich, with major offices in Washington, D.C., and New York.

The company also makes heavy use of bar codes. The inventory management system uses bar codes to track every significant piece of office equipment or furniture, while employees have bar-coded badges that allow them to check out music albums and books.

Most of the administrative database uses Adabas software from Software AG of North America, Inc. and runs on a VAX 8550 at the Munich data center. The exceptions are the accounting and inventory modules, which are packages from Ross Systems, Inc. and run on a VAX 8350 cluster in Washington, where the company's chief financial officer is located.

The result of the modernization program is that the company has gone from manual procedures and batch processing on DEC PDP-11s to a VAX-based information system — with 1,250 users — that is "on-line, relational, cross-functional and distributed," Short said.

Furthermore, the upgrade was accomplished ahead of schedule and under budget. Short said the project met its goals three years into a five-year plan and used $5 million of the $8 million budget.

"Whereas other government agencies have no problem getting funding and waste it, we do a lot more with the little budget we've got," Short said.

However, even with a modern information system, it is not clear how long the company will survive in its present form. Already there is talk in Washington that perhaps Radio Free Europe is obsolete and should be folded into Voice of America or disbanded.

Trying to adapt to the post-Cold War climate, the company is exploring new revenue-generating business opportunities. For instance, the stations could turn their massive collection of demographic and research data on Eastern Europe and the Soviet Union into an on-line database that would be valuable to businesses entering those markets.

DG boosts Eclipse line with low-end 3-MIPS box

BY SALLY CUSACK
CW STAFF

WESTBORO, Mass. — Data General Corp. extended its Eclipse line of MV computers last week with the introduction of a desktop machine that runs at 3 million instructions per second and is aimed at commercial, scientific and technical time-shared and client/server applications.

Designated the MV/3500 DC, the system supports as many as 40 users and is positioned in the middle of the lower portion of the Eclipse series. The system is based on a single-chip, custom, very large-scale integration CMOS microprocessor, designed by DG and manufactured by Hitachi Ltd. in Japan. The single-board architecture can be expanded to 16M bytes of memory in 4M-byte increments and can reportedly accommodate as many as four optional communications boards.

Scheduled for shipment in early September, a base model will be priced from $25,500, including 4M bytes of main memory and 179M bytes of Winchester storage. The MV/3500 DC supports AOS/VS II, AOS/VS and DG/RDOS and plugs into standard electrical outlets.

In a separate announcement last week, DG unveiled a GNU C++ compiler for its Aviion line of reduced instruction set computing-based servers and workstations. The compiler is based on AT&T C++ 2.0 and was designed to provide software developers with a high-level language programming tool.

GNU C++ is now available, and a software package comprised of GNU C++, a GDB debugger and AT&T C++ 2.0 libraries is priced at $1,595.

Cortex eases documentation

BY ROSEMARY HAMILTON
CW STAFF

Cortex Corp. extended its computer-aided software engineering (CASE) tool set to automatically generate end-user documentation.

The Cortex Documentor will be offered as an integrated component of Corvision, a family of tools that runs on the Digital Equipment Corp. VAX system.

Previously, there was no formal way to generate documentation for users, said David Holroyd, Cortex's president. The software is integrated with Corvision's repository, allowing it to share data and information with the other tools. So, when an application is modified, the updates will automatically be provided to the Documentor, which will then release new documentation for users.

Cortex plans to eventually tie its product to the DEC repository, CDD+. This will give customers the option of using either the Cortex or DEC repository as their core information storage component, Holroyd said.

The company has a longer term goal of providing a link to the IBM CASE environment, AD/Cycle, for customers with DEC and IBM equipment.

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Classic

FROM PAGE 29

costs such as software licensing fees that can be more costly for newer, more powerful machines.

Both IBM and DEC currently support their old System/36, PDP-11 and Decsystem machines. Users state that they appreciate the quality of the support and note that repair personnel who service the older machines are experienced.

"The field service engineers were trained in PDPs," McClinton says. "They were good and stayed with DEC." The result, he says, is that highly skilled technicians repair and maintain PDP-11s.

> "WE'RE NOT investing in enhancing the System/36 in capacity or growth. . . . [The System/36] is dead-ended."
>
> FRED WILE
> IBM

The South Street Seaport Museum in New York uses a System/36 to run its accounting packages. Controller Peter Reilly says the system is highly reliable and that "the software and hardware support has been there; there's no problem with any of that."

Software loyalty also plays a role in the decision not to upgrade. Users are often hesitant to start over, despite vendor assurances that their programs can be transferred with a minimum of bother. Leslie Maltz, director of computing and communication resources at Stevens Institute of Technology in Hoboken, N.J., says that's the reason the school waited until last year to retire its last Decsystem-20.

"We had such an investment in software," says Maltz, who is also the chair of the product directions committee at the Digital Equipment Computer Users Society (DECUS), the DEC user group. "It was really hard to make a major transition like that and really hard to find something that was comparable."

The South Street Seaport Museum's accounting software needs drove its decision to purchase the System/36 originally. "We were looking for software to meet our needs, and we found that what we liked best ran only on the System/36," Reilly says. Although the CSCI software it uses is now available on the AS/400, the museum will continue to use its System/36 until the lease expires in February 1992.

IBM's message for organizations such as Reilly's is clear. For one, IBM is developing no new software for the older System/36 line. "We're not investing in enhancing the System/36 in capacity or growth," says Fred Wile, IBM's director of marketing for AS/400 in the U.S. "It won't change at all. For a company that's growing, [the System/36] is dead-ended."

IBM is focusing its low-end attention on the System/36 successors: the AS/Entry and AS/400 families. Despite its greater functionality, the 2-year-old AS/400 has not yet won over most of the System/36 users. According to Computer Intelligence, a market research firm in La Jolla, Calif., there were 95,100 System/36s installed in the U.S. as of January 1990, compared with 26,100 AS/400s.

However, IBM is doing what it can to woo System/36 users to the AS/400. The firm revamped the System/36, introducing it last fall as the AS/Entry.

Furthermore, IBM manager of AS/400 marketing Art Abbey notes that nearly all software programs currently running on System/36s can be externally defined to run on the AS/400 while maintaining System/36 mode. However, while this makes the initial migration easier, it does not allow the user immediate access to AS/400 capabilities.

Unlike the System/36, DEC's 20-year-old PDP-11 line has the sanction of both user and vendor. As of December 1989, there were 177,000 machines installed worldwide, according to Sandy Gant, analyst at research firm Gartner Group/Infocorp in Santa Clara, Calif.

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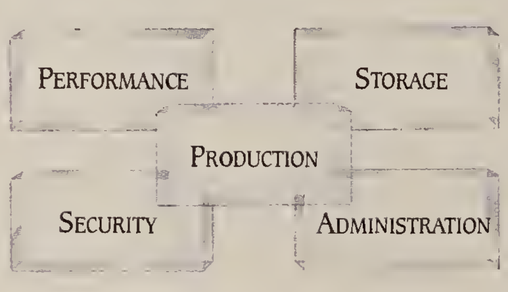

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PDPs "just don't die," Erbschloe says. "I've seen them in garages and warehouses, in the same spot, running and doing the same thing for 10 to 16 years."

DEC has been keeping the PDP alive with its May announcements of two PDP-11 computer systems that promise a 40% performance increase over previous high-end systems.

PDP-11 users remain cautiously enthusiastic. "The PDP-11 is a workable solution. It is currently running, we don't need to replace it, and DEC is willing to provide the maintenance at a reasonable cost," McClinton says.

During the 13 years the Mitre lab has had its PDP-11, the computer's role has changed, moving away from an aeronautics research function. The PPD-11 is currently being used to run communications packages complementing other systems that cannot be converted, Mitre technical staff member E. G. Livaditis says. "It serves a communications gateway function to another world," he says. "We acquire data on it from external sources via Decnet and import it into the VAX world."

Fermi National Accelerator Laboratory in Batavia, Ill., plans to hold onto three of its PDP-11s while most of the other 33 PDPs currently in operation are upgraded to VAXs. "We expect that after a while all [our] modern programs will run only on the VAX," says Peter Lucas, head of Accelerator controls, "but we have no plans to take [the PDPs] out. People are comfortable with them, and until the VAX is really solid, we'll just leave them."

As of January 1990, however, there were only 140 Decsystem 10s and 280 Decsystem 20s in the U.S., according to Computer Intelligence. This is largely because of DEC itself, which discontinued the machines in 1983. If DEC hadn't done so, the First Church of Christ Scientist in Boston says it would not have ceased using its Decsystem 10, says Gene Madden, manager of information systems.

The church has been upgrading to VAXs during the last several years, but those machines haven't been able to compensate for the familiarity of the Decsystem. "We have had a lot of experience on the Decsystem 10 and could do things on it that we haven't figured out on the VAX," Madden says.

"You can't build up 17 years of experience in three or four years," he adds.

> PDPS "JUST don't die. I've seen them in garages and warehouses, in the same spot, running and doing the same thing for 10 to 16 years."
>
> MICHAEL ERBSCHLOE
> COMPUTER ECONOMICS

Maltz agrees. The Decsystem Tops 10 operating system "was ideal for us," she says. It was run on both the Decsystem 10 and 20 "because of its richness and robustness. It had most of the functionality that was needed in our kind of environment," Maltz explains. She notes that it could support a large number of users, run a mix of computer-intensive and I/O-intensive jobs and had an early time-sharing device.

"The Decsystem was a classic," Madden says. "It produced an on-line computing environment for users that was very flexible and put a lot of power in the individual users hands that I've seen on other systems only recently."

For users who do decide to stick with their current equipment, Shannon cautions that maintenance costs can be significant and the power requirements substantial. But these considerations are sometimes outweighed by the immediate as well as long-term costs of an upgrade or replacement and the potential problems inherent in migrating software and specific applications. A significant number of users agree and continue to follow the old adage, "If it ain't broke, don't fix it."

Finn is a Boston-based free-lance writer and editor.

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Bozman

FROM PAGE 29

Unfortunately, in today's world, each of the dozens of OOP vendors, most of them small start-ups, has designed a unique environment. This includes competing object-oriented database vendors such as Servio Corp., Versant Corp., Ontologic, Inc. and Objectivity, Inc.

Someone, somewhere has got to come up with a set of standard interfaces to link object-oriented technology with the everyday procedural code most people use.

One group that thinks it can bridge the gap is the 1-year-old Object Management Group (OMG). OMG is a nonprofit vendor group with a Star Trek-like mission: to boldly forge interfaces where none has gone before. So far, OMG Marketing Vice-President John Slitz said, there are 80 members in the OMG group — enough to make for a lively discussion. Many of these competing vendors gained earlier experience in standards-making cooperation through participation in the Open Software Foundation.

However, the 80 members, including IBM, DEC, Hewlett-Packard and many OOP vendors, are not going to sit around wrangling and arm wrestling all day long. "OMG is a technical and promotional vehicle," Slitz said. "The idea is to get the industry to accept a new paradigm, which is object-oriented technology. But since nothing in technology ever goes away, this paradigm is going to have to overlap that of procedural code."

How will the transition be managed? How will the interfaces be created? Slitz said that OMG's intent is not to make standards. That task will be left to the computer industry's traditional standards-making bodies — American National Standards Institute and the International Standards Organization.

OMG members will simply propose the interfaces and map out a consistent OOP "framework" for the industry. "We believe we've struck the proper balance between cooperation and competition," Slitz said. "We're looking at very detailed interface specifications that would allow the overall [OMG] framework to be cobbled together."

For this privilege, OMG members pay $5,000 in annual dues, with dues increasing to $50,000 if the member firm has more than $500 million in annual revenue.

The task of bridging the OOP and procedural worlds may be difficult, but it is vital. Unless a set of interfaces is developed, each object-oriented product will have to be custom fit to each standard vendor offering.

That is why DEC is custom-designing an interface for its own RDB relational database and an object-oriented database made by Objectivity, Inc. in Menlo Park, Calif. [CW, Aug. 13]. DEC is also developing new "class libraries" to supplement Objectivity's class of CAD/CAM "objects."

However, neither giant DEC nor little Objectivity has any desire to reinvent the wheel. Both are OMG members.

Bozman is *Computerworld's* West Coast bureau chief.

> "THE IDEA IS to get the industry to accept a new paradigm, which is object-oriented technology."
>
> JOHN SLITZ
> OBJECT MANAGEMENT GROUP

Addition of SQL to Express targets database systems

BY MAURA J. HARRINGTON
CW STAFF

Information Resources, Inc. recently upgraded its fourth-generation language Express package by embedding SQL in the product. This feature allows users to send large queries to IBM's DB2, SQL/DS and Digital Equipment Corp.'s RDB relational database systems.

Express with SQL was designed to distribute application logic, Information Resources President Jeffrey Stamen said. SQL under Express adds logic to a query by having key words built into the query to save steps, Stamen said. "So now it's not necessary to know what communications protocol you're using."

"I think there is a lot of interest in the SQL feature," said Steven Rubinow, director of decision support systems for the information systems department at Quaker Oats Co. Rubinow said that while having SQL embedded into Express is an important feature, he would also have liked to see an Express version of Microsoft Corp.'s Windows Version 3.0 in this upgrade.

Other enhancements made in Version 3.0 were personal computer-to-mainframe communications capabilities through the Express Communications Architecture (ECA) and enhanced graphics capabilities, the firm said. ECA will communicate between platforms only if both are running Information Resources' Express, a spokesman said.

Express costs between $50,000 to $175,000, depending on configuration.

NEW PRODUCTS — SOFTWARE

Utilities

Data Summary, Inc. has announced a data reformatting utility designed for IBM Application System/400s.

The Intelligent Data Conversion System (IDCS) enables users to move existing data into AS/400 applications. It consists of a data conversion program generator, an entry screen for matching I/O fields and a proprietary data dictionary of I/O fields that can be manually or automatically loaded. The IDCS runs as a native application on AS/400 systems. It requires a data entry terminal and disk space for unconverted and converted data.

The price is $1,800 for all AS/400 models.

Data Summary
2535 S. Clinton
Berwyn, Ill. 60402
(708) 795-060

Release 3.0 of Tapeview, a tape display system developed by Deere and Co., has been announced by Main Frame Software Products Corp.

The product can display any message in the VSE/SP environment — a platform not supported by previous releases. Other features include the ability to initiate functions, such as beginning a certain job at a specific time, and the ability to provide an automatic response to system messages.

The system also enables users to get hard-copy printouts of a current month's requests by pressing a single key.

Pricing for a software license for Release 3.0 starts at $8,500.

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Applications packages

Andersen Consulting has added a Promotions and Deals software module to its DCS/Logistics online, IBM mainframe-based computer system.

The tool helps distributors manage on-line promotional programs such as setup procedures, order and invoice pricing, payments and planning and analysis routines.

The DCS/Logistics Promotions and Deals module costs between $50,000 and $125,000, depending on CPU size and type of model.

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System Software Associates, Inc. has announced Version 2.1 of its Business Planning and Control System line of application software products designed for the IBM Application System/400 environment.

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COMMENTARY

Patricia Keefe

While the cat's away

The great escape. Lotus Chief Executive Officer Jim Manzi took off on sabbatical a couple of weeks ago, possibly headed for Spain. Does bad news stalk his vacation plans? Lotus stock dropped 26% in value during the two days after the company startled Wall Street by lowering expectations for the third quarter. Meanwhile, for the second year in a row, the League for Programming Freedom chose to vent its frustration over intellectual property rights issues outside of Lotus' headquarters.

Also, although Lotus Senior Vice-President Frank King denies it and a spokesman says the product is on schedule, reports persist that Lotus is having a tougher time than expected porting 1-2-3 to Windows. The latest reorganization reportedly has resulted in the scrapping of two separate Windows development projects, but it is expected to produce a greater overall focus on solving that problem.

The last time Manzi tried to take a vacation, his planned merger with Novell came tumbling down around his ears.

Don't leave home without it. Yet another reason to buy

Continued on page 42

CD-ROM's Unix promise unmet

Goal of one standard package for many Unix platforms remains elusive

ANALYSIS

BY JAMES DALY
CW STAFF

On paper, it looks like a match made in heaven. Feed the hungry computational needs of increasingly sophisticated Unix-based workstation applications with the high-capacity storage capabilities offered by compact disk/read-only memory (CD-ROM) technology, and it's smooth technological sailing, right?

In theory, yes. However, that matchup now seems stalled on the commercial software front, tripped up by a series of non-interoperable software drivers that prevent applications developers from writing a single CD-ROM package that can work across a variety of Unix platforms.

"It's a real hornet's nest, and users are caught in the middle," said Linda Helgerson, editor of the "CD-ROM End User" newsletter in Falls Church, Va.

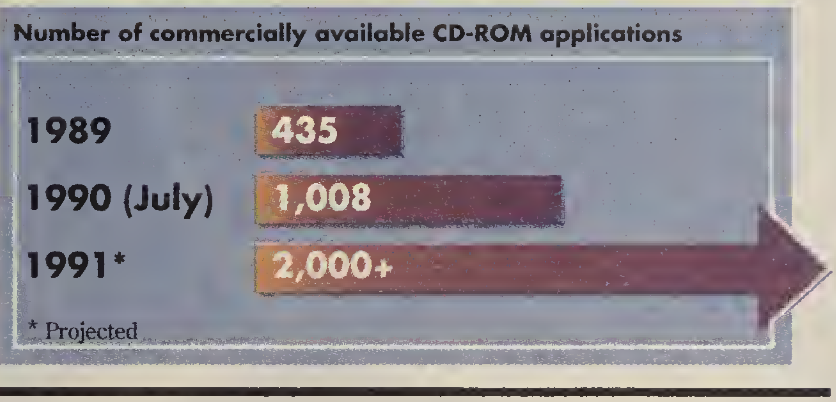
Analysts said that because each vendor's machine uses a proprietary software driver, applications developers who wish to publish commercial Unix software on CD-ROM must tailor their software to each vendor's product and get a proprietary driver's license to have the disk work on that particular CD-ROM drive.

A software publisher, for instance, would have to write separate applications for Hewlett-Packard Co., IBM and Sun Microsystems, Inc. workstations.

"If you're a developer going after the whole Unix marketplace, you don't want to have to write to several different platforms, because it erodes your profit margin horribly," said Bob Katzive, vice-president at Disk/Trend, Inc., a market research firm in Mountain View, Calif.

Within limits

The list of available CD-ROM applications is growing, but cross-platform Unix usage is restricted



Source: Helgerson Associates, Inc.

CW Chart: Michael Siggins

Analysts said this lack of a uniform driver is slowing down the assimilation of what could be a technological boon to the workstation world. CD-ROM is an optical form of storage often used for high-end backup discs. The technology offers the ability to store 600M bytes of information on a 4-ounce disc — the equivalent of more than a dozen hard disks.

Such expansive storage abilities make it a natural for graphics-intensive Unix applications that quickly stretch the storage limitations of magnetic media.

So far, workstation manufacturers have embraced the technology enthusiastically. HP has offered CD-ROM drives and packages for several years, while Sun recently announced that it will include its CD-ROM drive as a standard feature on many of its Sparcservers and Sparcstations and vowed to move all of its software onto CD-ROM by next year. IBM has also included a CD-ROM drive as standard equipment on a version of its RISC System/6000 workstation, and Silicon Graphics, Inc. is reportedly readying a similar announcement.

Two years ago, the International Standards Organization (ISO) released ISO 9660, a CD-ROM volume and file format specification for the DOS operating system that standardized the placement of files and data on CD-ROM. However, while the so-called "High Sierra Standard" — named after a resort in the eastern mountains of California where the particulars were finally hammered out — is adequate for the similar stylings of DOS machines, "it is far too restrictive for Unix," said Andy MacRae, segment manager for third-party storage devices at Sun.

Unix-based systems vendors have used ISO 9660 by default, but they are not happy about the jury-rigged solution.

"There's a significant tradeoff involved," said Sabrina Lin, a member of the applications support division at HP. "ISO 9660 gives you a degree of interoperability, but at the expense of suboptimal performance for Unix systems."

Meanwhile, several ad hoc committees have met to try to hammer out a CD-ROM driver standard optimized for the Unix environment, but not one has been successful yet. Analysts said the standardization issue must be nailed down before CD-ROM for commercial Unix can take off. "A significant opportunity is being lost here because publishers are unwilling to devote a lot of time writing several versions of their software for the [Unix-based CD-ROM] format," Katzive said.

Vendors have tried to lure applications developers and seed the market by offering internally produced applications. However, reaction to this enticement has been mixed.

"Users are just not going for them in earnest because they can only get internal programs that come from the company store," Helgerson said. "And users are beginning to tire of the vendors playing games."

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On Node VX8240

```
FSEDIT CREW.PROJECT
Command ===>
                    Municipal Engineering Project
                         Design Calculations

                              Engineer: Steve Rowland________
Project: Green Level__________     Date: June 30, 1988_______
Station: 383100_______________
Description: Installation of storm drains on roadways 210 and 1010

INITIAL DATA:                       :       48 cfs
Cubic feet per second               :   257.50 ft.
Approximate head wall elevation:        52 ft.
Length of pipe                      :      250 ft.
Invert                              : reinforced concrete  Barrel no 50'
Barrel shape and material

Trial No. 1      N= 54'   B= 859   k= 1210
Lead Engineer Approval: JML
```

*Digital Review. Reprint available.

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	Springfield	May
MD	Baltimore	Aug
	Rockville	June, Sept
MI	Detroit	Sept
	Grand Rapids	June
MN	Minneapolis	June
MO	Kansas City	Aug
	St. Louis	May
MS	Jackson	June
NC	Cary	May, June, Aug
	Charlotte	Sept
	Greensboro	May
NE	Omaha	Sept
NH	Portsmouth	July
NJ	Edison	Aug
	Saddle Brook	May, July
NM	Albuquerque	Sept
	Los Alamos	Sept
NY	Buffalo	Aug
	New York	Sept
	Rochester	May
	Syracuse	July
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Product Class	Low-profile desktop	Small desktop
The User	For the user who needs 386SX performance and requires specific network features	For the general business user considering 286 personal computers
Microprocessor	32-/16-bit 386SX	32-/16-bit 386SX
Clock Speed	16-MHz	16-MHz
Coprocessors Supported	16-MHz 387SX	16-MHz 387SX
Expansion Slots Available	3	5
Type	(2) 8-/16-bit ISA (1) high-speed memory	(4) 8-/16-bit ISA (1) high-speed memory
Standard Memory	1 MB	2 MB
Maximum Memory	16 MB	13 MB
Storage Capabilities		
3½-inch Diskette Drive	1.44-MB standard	1.44-MB standard, second optional
5¼-inch Diskette Drives	1.2-MB optional	1.2-MB optional 360-Kbyte optional
Standard Fixed Disk Drives	40-MB	84-MB 40-MB
Optional Fixed Disk Drives *Fixed Disk Expansion Unit only. **Supported in Model 1 only.	120-MB 60-MB 40-MB 20-MB	Fixed Disk Expansion Unit (Model 300) 320-MB** 84-MB 300-MB* 40-MB 110-MB 20-MB
Maximum Storage Capacity	120 MB	1.2 GB
Tape Drives (Optional)	N/A	150-/250-MB, 80-/120-MB, or 60-MB
Operating Systems MS-DOS and MS OS/2 are available from Compaq	MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386	MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386
Display (Optional)	Video Graphics Color Video Graphics Monochrome	Advanced Graphics Color Video Graphics Color Video Graphics Monochrome
Video Controllers	Video Graphics (standard) 640 × 480 graphics 720 × 400 text 132-column text support	Video Graphics (standard) 640 × 480 graphics 720 × 400 text Advanced Graphics 1024 (optional) 1024 × 768 graphics 720 × 400 text
Keyboard	Enhanced Keyboard	Enhanced Keyboard
Dimensions	15.0"W × 14.9"D × 3.9"H (38.1cmW × 37.8cmD × 9.9cmH)	15.8"W × 14.8"D × 5.9"H (40.1cmW × 37.5cmD × 14.9cmH)
Additional Options ‡U.S. and Canada.	2400-Baud Internal Modem‡	2400-Baud Internal Modem‡

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20-MHz 387SX	20-MHz 387 or Weitek 3167	25-MHz 387 or Weitek 3167	33-MHz 387 and 33-MHz Weitek 3167
4 (4) 8-/16-bit ISA	5 (4) 8-/16-bit ISA (1) 32-bit memory	5 (4) 8-/16-bit ISA (1) 32-bit memory	7-8 (7) 8-/16-/32-bit EISA (1) 32-bit memory
2 MB 16 MB	4 MB 16 MB	4 MB 16 MB	4 MB 100 MB
1.44-MB standard, second optional	1.44-MB standard, second optional	1.44-MB standard, second optional	1.44-MB standard, second optional
1.2-MB optional 360-Kbyte optional	1.2-MB optional 360-Kbyte optional	1.2-MB optional 360-Kbyte optional	1.2-MB optional 360-Kbyte optional
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2.6 GB	1.2 GB	1.2 GB	2.6 GB
150-/250-MB, 80-/120-MB or 60-MB	150-/250-MB, 80-/120-MB or 60-MB	150-/250-MB, 80-/120-MB or 60-MB	320-/525-MB, 150-/250-MB or 80-/120-MB
MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386	MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386	MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386	MS-DOS, MS OS/2, Novell NetWare, Microsoft LAN Manager, Banyan VINES, SCO UNIX/386
Advanced Graphics Color Video Graphics Color Video Graphics Monochrome	Advanced Graphics Color Video Graphics Color Video Graphics Monochrome	Advanced Graphics Color Video Graphics Color Video Graphics Monochrome	Advanced Graphics Color Video Graphics Color Video Graphics Monochrome
Video Graphics (standard) 640 × 480 graphics 720 × 400 text 132-column text support Advanced Graphics 1024 (optional) 1024 × 768 graphics 720 × 400 text	Video Graphics (standard) 640 × 480 graphics 720 × 400 text Advanced Graphics 1024 (optional) 1024 × 768 graphics 720 × 400 text	Video Graphics (standard) 640 × 480 graphics 720 × 400 text Advanced Graphics 1024 (optional) 1024 × 768 graphics 720 × 400 text	Video Graphics (standard) 640 × 480 graphics 720 × 400 text 132-column text support Advanced Graphics 1024 (optional) 1024 × 768 graphics 720 × 400 text
Enhanced Keyboard	Enhanced Keyboard	Enhanced Keyboard	Enhanced Keyboard
15.8″W × 14.8″D × 5.9″H (40.1cmW × 37.5cmD × 14.9cmH)	15.8″W × 14.8″D × 5.9″H (40.1cmW × 37.5cmD × 14.9cmH)	15.8″W × 14.8″D × 5.9″H (40.1cmW × 37.5cmD × 14.9cmH)	19.2″W × 17.7″D × 6.5″H (48.8cmW × 45.0cmD × 16.6cmH)
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Taco Bell sends out for HP PCs

Fast-food chain automates to free managers to work with people

ON SITE

BY RICHARD PASTORE
CW STAFF

IRVINE, Calif. — Most fast-food aficionados have had the displeasure of dealing with the often surly adolescents who man the counters. The managers of these burger flippers are often nowhere to be seen. But Taco Bell Corp. is hoping a new restaurant-based personal computer system will help distinguish its customer service by freeing its managers for more interaction with the burrito-buying public.

"The customers are the important people in this business," said Ken Harris, vice-president of MIS at Taco Bell. "We want to automate the administration portion of the manager's job as much as possible so he or she can impact the business by working directly with the customers."

Taco Bell has sunk $8.2 million into the hardware purchase alone: The restaurant chain will take delivery of 1,750 Hewlett-Packard Co. Vectra PCs during the next 18 months. HP will install and service the Intel Corp. 80386SX-based boxes in each company-owned restaurant's back office.

Restaurant managers will use homegrown Unix-based software to track and predict sales, schedule staffing, manage inventory levels and track speed of service.

For example, the system could use historical sales data to predict how much food the restaurant will sell next Wednesday and suggest how much inventory to order.

The manager, noting that a major league baseball game will take place nearby that night, could enter an expected 10% sales increase into the program. The system, in turn, would then suggest how many extra workers should be scheduled that night to cover the increased crowds.

Previously, the manager made all of these determinations manually; Taco Bell had no restaurant automation other than a point-of-sale (POS) system, Harris said. Overall, the PCs should save the manager 20 to 25 hours of paperwork per week, he estimated.

The system should also save the $1.4 billion chain a few bucks as well. "The effective use of these systems is expected to improve our food costs by 1% of sales," said Merlin Piltz, vice-president of operations.

The savings will come partly from improvements in inventory management. With better sales predictions, inventory is less likely to wind up spoiling in restaurant storage bins.

The company also expects the system to boost sales volume. Improvements in staffing levels and greater personal attention from the manager is expected to move customers through the line faster and allow for increased sales volumes at key rush times, Harris said.

Taco Bell's corporate executives will also benefit from the system by improving the timeliness and scope of their restaurant data reports.

On a nightly basis, the PCs will download transaction data from the POS systems. In turn, an IBM RISC System/6000 workstation at headquarters will poll all the PCs nightly via dial-up asynchronous lines and upload the data to an IBM 3081 mainframe. Company executives can then use mainframe-generated reports to see how well burritos are selling in Boise and whether restaurant No. 1,342 has improved its cost control, for example.

Taco Bell *uses personal computers to beef up customer service*

Taco Bell, along with its sister Pepsico, Inc. subsidiaries Kentucky Fried Chicken Corp. and Pizza Hut, Inc., recently signed a $1 million deal with Corporate Microsystems, Inc. to provide the communications software to link the restaurant PCs with the headquarters hardware [CW, July 30].

Solid reputation

HP won the PC bid based on the reliability of both its hardware and the company itself, as well as price, Harris said.

"We're not looking at this thing as a one-year investment," he noted. "HP has a quality computer, and they're a quality organization."

Though the technology for such a system has been available for some time, hardware prices precluded earlier implementation.

Because the fast-food business operates on low margins, "there has been a reluctance in this industry to making big investments in hardware," Harris explained. "But now I think you can get some rather dramatic impacts at a reasonable cost."

Future enhancements to the system will include real-time sales tracking and electronic data interchange (EDI).

Already in limited test use, EDI-equipped restaurants are ordering inventory from suppliers and receiving order confirmations electronically.

Front-end applications released for SQL Server

BY PATRICIA KEEFE
CW STAFF

At long last, front-end applications for SQL server engines are starting to emerge from their 1- to 2-year-old cocoons. At least four vendors — Borland International, Dataease International, Software Products, Inc. and Revelation Technologies — are planning to ship front ends, starting next month.

The timing couldn't be better, both for frustrated users and for Microsoft Corp., which recently launched a renewed distribution effort for the SQL Server it co-developed with Sybase Corp.

Many of the early OS/2 beta testers were really standing in line to use SQL Server, in some cases as part of an effort to downsize mission-critical applications. However, access to SQL Server was stymied on two fronts: A distribution strategy centered around Ashton-Tate never came to fruition, and cocksure developers soon discovered that building an SQL front end was a bit more complicated than they had anticipated. Subsequently, initial delivery targets were thrown off course by more than a year.

The change in schedule boomeranged throughout the user community. About a year ago, Chevron Canada had to scrap plans to base a significant portion of its new order entry system on Borland's Paradox SQL Link, which was supposed to ship last summer. It then turned to Dataease, with the same results. "We were pretty frustrated," said Bill Soper, a project manager for the Chevron Automation Sales Team. "By the end of 1989, we had to make a decision."

Soper rejected developing his own front end in C because the development staff is Cobol-based, nor did he want to develop on a minicomputer platform. The project was saved by Sybase's decision to port its A Programmers Tool (APT) to a version of Unix running on Intel Corp.'s 80386 chip.

Soper, who also heads up the Vancouver SQL Server Users' Group, said he believes many people have held off attempts to downsize mission-critical applications because of the lack of front ends. He predicted that during the next month or so, as many of these users begin to examine this quarter of front ends, many of these downsizing projects will be activated. Chevron is among those that will consider the new front ends.

Other issues key to the three or four largest corporations participating in the users group, according to Soper, concern backup and administrative concerns.

But SQL Server, which has found itself mired in minuscule sales cushioned by endless mar-

Continued on page 42

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Big-name database vendors hit Macworld

BY RICHARD PASTORE
CW STAFF

BOSTON — Macworld Expo attendees were treated to more than the usual slew of desktop publishing product debuts earlier this month. Several business productivity and networking rollouts graced the booths here, including software from the big names in databases.

Oracle Systems Corp. announced Oracle Server for Apple Computer, Inc.'s Macintosh. The SQL server allows Macintosh users to access data residing on minicomputers, mainframes and OS/2 client/server systems, the company said.

With the included Hypercard-based Query Tool, users can generate their database queries graphically by pointing to and clicking on database columns and tables. Other Hypercard tools let users generate Hypercard forms without programming and allow administrators to add users, create tables and establish host connectivity.

The software supports Apple's Localtalk, Ethertalk and Tokentalk. It requires a Macintosh II (preferably a Macintosh IIFX) with a minimum of 8M bytes of system memory and 10M bytes of hard-disk capacity. The software will ship in the first quarter of next year, according to the company, which has not revealed pricing.

Ashton-Tate Corp. introduced Dbase IV Runtime Plus for the Macintosh, based on the newly released Dbase IV Version 1.1. The utility is said to allow Macintosh users to run most Dbase IV and Dbase III Plus DOS-based applications without modification.

With Runtime Plus, users can utilize the Dbase IV language and Dot Prompt to manipulate and browse through data and create or modify applications on the Macintosh. They can then port these applications to DOS-based personal computers unchanged. Also, networked users can have shared access to applications and data on PCs and Macintoshes that adhere to Apple's Appleshare File Protocol. Ashton-Tate did not release pricing or an availability date.

Continuing in the database arena, **Occam Research Corp.** in Watertown, Mass., unveiled Muse, an English-driven data analysis program. Users can type simple English commands to reference, manipulate, reformat, calculate and visualize large data sets. Muse will run on a Macintosh SE or higher with 2M bytes of memory, a hard disk and System 6.0.5 or higher. General distribution of the $695 product is expected in the first quarter of 1991.

Networked Macintosh users can simultaneously view and edit the same graphics-and-text documents using Aspects real-time document conferencing software from **Group Technologies, Inc.** Two to 16 users at a time can access files created with other Macintosh utilities and, via 2,400 bit/sec. connections, make changes that appear virtually instantaneously, the Arlington, Va.-based firm claimed. The program includes a word processor and painting and drawing tools for use in editing. Due out next month, Aspects will cost $299.

A number of new scanners also popped up at the show. Los Gatos, Calif.-based **Caer Corp.**'s Typist handheld scanner lets users scan text into a Macintosh file at the rate of 500 words per minute. The information can be scanned directly into whatever application the user is running on the Macintosh, including spreadsheets and databases. Scheduled to ship next month, the $695 device requires a Macintosh SE or higher, a minimum of 4M bytes of memory and a hard disk. A DOS machine version is also available.

Another of the increasingly common budget-priced laser printers debuted at the show, this one from **NEC Technologies, Inc.** in Boxboro, Mass. NEC's six page/min. Silentwriter2 Model 90 sells for $2,495 and is fully compatible with Adobe Systems, Inc.'s Postscript format.

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NEW DEALS

Compuadd wins federal contracts

Compuadd Corp.'s Government Services division has won three major procurement contracts for personal computers and related products. The states of **Louisiana** and **North Carolina** have authorized Compuadd to fill orders from state agencies, local governments and state-supported educational institutions. The 37-member **Inter-University Council of Ohio** has also authorized Compuadd to serve as a supplier of PC equipment.

The **General Services Administration** (GSA) has awarded its 1990 GSA schedule for the period of June 29, 1990, through March 31, 1991, to **Compaq Computer Corp.**

Silicon Graphics, Inc. has supplied the **National Research Council of Canada** (NRC) with $1.7 million worth of its Iris 3-D workstations and project supercomputers. The systems will be installed in six institutes within the council and will be networked via Ethernet for use in advanced scientific research.

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Speed upgrade option	✓ up to 10 ppm	No
Adobe PostScript option	Yes	Yes
Printer emulation	✓ IBM, HP PCL	HP PCL
Std. plotter emulation	✓ Yes	No
Font card slots	✓ 2	1
Std. input paper tray capacity	✓ 200	50
Std. output paper tray capacity	✓ 100	50
Opt. sec. input paper tray capacity	✓ 500	250
Opt. envelope tray capacity	✓ 75	20
List price*	✓ $1495	$1495

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Keefe

CONTINUED FROM PAGE 35

travel insurance: In case you haven't been watching lately, Lotus stock hit a new 52-week low last Wednesday, bottoming out at 19¼ points, just ¼ of a tick under the previous low of 19½. Wall Street analysts say the stock's steady descent is related to expectations for the next two quarters and the Street's severe case of jangled nerves. Many industry observers predict that delivery of Lotus 1-2-3 Version 3.1, which is expected within a few weeks, will perk the stock up a bit, although a big recovery will probably hold off until 1-2-3 for Windows ships in 1991.

Easy to be hard. Charlotte Walker, an analyst at Labe Simpson & Co., is unfazed by the recent layoffs at Lotus [CW, Aug. 13]. "It's easy to bash Lotus," she said, noting that the company has a poor record of communicating with Wall Street, a "spotty" financial record and an "arrogant" CEO — Jim Manzi — who "attracts a lot of negative press."

A mountain out of a molehill? One Wall Street pundit says he isn't surprised some Lotus employees reportedly are expecting more layoffs, although a Lotus source says it won't happen. Describing Lotus as a bunch of little fiefdoms, the analyst said: "Every time I walk into Lotus, I can't figure out what a lot of these people are doing, and I don't usually have that problem." The Lotus source attributed the job consolidation of two weeks ago to that very issue.

Lotus recently overhauled some of its divisions, eliminating some of those fiefdoms. Another source close to the developer, meanwhile, reports that "the numbers being thrown around inside" the company indicate that Lotus wants to squeeze $10 million or more in costs out of the next two quarters in an effort to calm Wall Street jitters.

Another Windows 3.0-related fix. Networked users of EMS emulators from Quarterdeck (QEMM) and Qualitas (386 to the Max) who try to run those packages under Windows Version 3.0's 386 enhanced mode along with DOS packages can not load their network redirectors and drivers into high memory. This caused a shrinkage of available memory for DOS applications because Windows 3.0 lacks support for importing a variety of drivers and loading them into high memory.

Quarterdeck did come up with a fix, but concern that it would not work with future Windows upgrades led Microsoft to provide the VXD virtual device driver, which allows users to load network code into high memory. It is available through Quarterdeck and Qualitas.

Only Austin knows for sure. "IBM will be goddamned if it doesn't ship OS/2 2.0 by the first of the year," says a user who talked with IBM recently. "Unofficially, that's their goal." IBM is said to be hopping mad over what appears to be Microsoft's leisurely approach to finishing Version 2.0. Last week, Microsoft vice-president Steve Ballmer conceded that Microsoft has given inconsistent answers about a delivery date for 2.0. He said the program is 95% complete and will ship sometime in 1991. He attributes most of the waiting time to a "fit and finish" goal that will require a thorough (and most likely lengthy) beta-test process. Responding to developers who don't expect 2.0 to ship before the third quarter of 1991,, Ballmer admitted it was possible but seemed to be saying it will ship earlier. IBM, meanwhile, tends to ship its versions of OS/2 long before Microsoft OEMs do, so anything is possible.

Keefe is *Computerworld's* senior editor, PCs and workstations.

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CD-ROM

CONTINUED FROM PAGE 37

keting promises, is about to get a jolt.

A number of second-tier players, including MDBS' Object 1 and Intelligent Environment's Application Manager — have been out in the market for a while, according to Richard Finkelstein, a database consultant and owner of Performance Computing, Inc. in Chicago.

In the last two weeks, Software Products, Inc. (SPI), Dataease and Borland announced plans to ship front-end to SQL Server in September.

Finkelstein said developers had two choices: they could translate their existing applications into SQL and preserve their current user base, or they could embed SQL statements in their program. In the latter case, SQL is embedded in new programs, which means that the old programs have to be rewritten.

Borland plans to unveil a new SQL Link on Sept. 5. Invites stamped "Vroom (SQL) Turbo Drive" went out last week. Vroom and Turbo Drive are actual names of proprietary Borland technology. Chevron has looked at Advanced Revelation.

David Cearley, a software analyst at Gartner Group, Inc. who is beta testing all of these products, reports said that all are looking good. His favorite, however, is the lesser known Revelation's Advanced Revelation: "It might be the best one, but it's the lesser known one."

Separate from the issue of available front ends, Microsoft has to provide a distribution and support infrastructure. SQL Server is included in the massive LAN Manager retail effort.

NEW PRODUCTS

Systems

Compuadd Corp. has announced a personal computer based on Intel Corp.'s 80386SX microprocessor.

The Compuadd 320S features built-in parallel, serial and game ports; five expansion slots; one 5¼- and two 3½-in. half-height drive bays; and a motherboard with a built-in hard drive interface.

Pricing for complete configurations starts at $1,859. The product is being bundled with Compuadd's licensed versions of Microsoft Corp.'s Windows Version 3.0 and MS-DOS Version 4.01 at no additional charge.

Compuadd
12303 Technology Blvd.
Austin, Texas 78727
(512) 250-1489

Texas Instruments, Inc.'s Peripheral Products Division has announced an Intel Corp. 80C286-based notebook-size personal computer.

The Travelmate 2000 measures slightly less than 1½-in. high with an 8½-in. by 11-in. footprint. It features 1M byte of random-access memory, which can be expanded to 3M bytes; a triple supertwist black-on-white IBM Video Graphics Array-compatible display; and an internal 20M-byte hard disk drive.

The product is priced at $3,999.

TI
P.O. Box 202230
ITG-040
Austin, Texas 78720
(800) 527-3500

Sunriver Corp. has added a high-end workstation to its Cadsystem product family.

The Lightstation provides Autodesk, Inc. Autocad users with automated engineering functionality and features multitasking 32-bit graphics processing and 1,024- by 768-pixel resolution for high-speed computer-aided design computations, according to the company. The product is available with optional 16- and 19-in. monitors.

The Lightstation costs $3,499.

Sunriver
11500 Metric Blvd.
Austin, Texas 78758
(512) 835-8001

Software applications packages

Samna Corp. has announced an update of its Ami Professional word processor that is compatible with Microsoft Corp.'s Windows Version 3.0.

Version 1.2 of Ami Professional allows users to employ Windows features such as three-dimensional push buttons, proportional system fonts and a broader color palette. Other features include the ability to integrate graphics and text and built-in drawing and charting capabilities.

The product is being offered to first-time buyers for $495. Registered users of Ami Professional may upgrade to Version 1.2 for a $10 shipping and handling fee.

Samna
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Atlanta, Ga. 30342
(404) 851-0007

Software utilities

Diagsoft, Inc. has introduced a benchmarking program designed to allow manufacturers and end users to evaluate IBM Personal Computers and compatibles.

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COMMENTARY

David Freeland

Keeping up with Netview

The more you get, the more you want. It seems users of data processing systems have always been that way, and users of automated network management products are no exception. One day you get a response to your wish for more timely network information through IBM's Netview, and then you realize you have so much information that you need more software to manage the Netview information.

As a case in point, a recent survey conducted by a network management software vendor claims that only 15% to 20% of Netview messages get logged for corrective action — even after filtering.

A network manager at a New York investment banking firm said, "We are currently investigating filtering and thresholding of alarms over a heterogeneous environment. There is a critical need for alarm correlation to reduce the flood of messages."

Fortunately, vendors are already beginning to address this need with software that further refines Netview output and integrates it with other areas of network management. For example, products from IBM and other vendors present Netview information on graphical displays. (IBM's current product

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Microsoft's last LAN stand

Updated LAN Manager is late contender; users skeptical

ANALYSIS

BY JIM NASH
CW STAFF

Borrowing a tactic used with some success by the Chinese during the Korean War, Microsoft Corp. has announced its intention to throw people at its most notable failure — local-area networking.

In announcing Microsoft's decision last month to directly market its networking product, LAN Manager, company executives punctuated their speeches with hawkish bluster about storming beaches and conquering markets.

Rhetoric aside, however, industry observers agreed that Microsoft has shown up late for the LAN contest. Many said it would be next to impossible for Microsoft to usurp the No. 1 spot of Provo, Utah-based Novell, Inc., which is widely acknowledged to hold about 65% of the personal computer-based LAN market. Estimates of LAN Manager's presence hover at about 10%, including its OEM sales.

"I think [Microsoft's announcement] will fill up a lot of media pages," said Karen Soskin, a telecommunications specialist at Miles, Inc. in Elkhart, Ind., "but unless they find a fundamental way to improve upon what is out there and can communicate it clearly and cleanly, they don't have a chance."

So far, Redmond, Wash.-based Microsoft has said it will commit 500 new employees to the existing LAN Manager development and marketing teams. Executives have refused

Continued on page 49

Ray Vella

Globalization: Key to corporate competition

BY ELISABETH HORWITT
CW STAFF

LEXINGTON, Mass. — The use of global networking to gain competitive advantage is just taking off among the more savvy international firms, according to a recently completed study by KPMG Peat Marwick. However, most of the 50 firms profiled in the study use their international networks to support basic operations and justify the high-speed backbones on the basis of cost, said William Synnott, a director at Peat Marwick subsidiary Nolan Norton & Co.

The one-year study "focused on how networks are used in support of corporate globalization," as well as emerging trends within "the regulatory, political and market structure in which global networks operate," Synnott said.

A number of companies interviewed by Nolan Norton had indeed found inventive ways to use their global networks to outmaneuver their rivals. One set of strategic applications ran on delivery networks, which are used to bring the company closer to the customer, supplier or other business partner. Such applications include electronic data interchange, automated teller machine networks and airline reservation systems.

Nolan Norton's William Synnott

Firms that wrung the most advantage from delivery networks used them for much more than simple provision of customer services. For example, American Express Travel Related Services has made digitized images, rather than copies, of customers' statements so that they can be electronically transmitted not only to the customer, but also to different parts of the credit card firm.

The data is then used in strategic applications such as "micro marketing on the basis of consumers' buying habits," Synnott said.

Even more strategic potential is to be found in the information type of network, which is "used to leverage total staff and resources, bringing a totality of ideas, skills and experiences together," Synnott said. This is important in a firm where such resources are scattered around the world, he added.

At Digital Equipment Corp., for example, an engineer "puts a problem on the network of 50,000 terminals and VAXs around the world, goes to bed and the next morning finds half a dozen solutions," Synnott said.

International clothing retailer Benetton uses its network to collect daily sales data from its outlets so that it can "track what's hot and what's not moving" for planning purposes, Synnott said.

In contrast to the above leading-edge companies, however,

Continued on page 48

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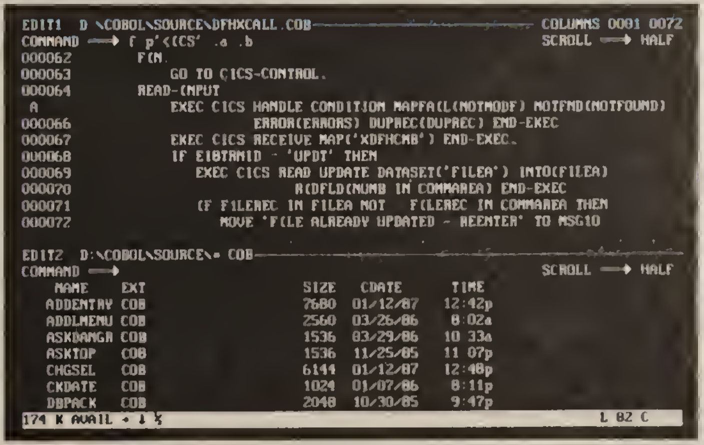

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EDIT1   D \COBOL\SOURCE\DFHXCALL.COB―――――――――――――――――――――――――― COLUMNS 0001 0072
COMMAND ──→ f p'<(CS' .a .b                                      SCROLL ──→ HALF
000062         F(N.
000063             GO TO CICS-CONTROL.
000064         READ-INPUT
 A                 EXEC CICS HANDLE CONDITION MAPFA(L(NOTMODF) NOTFND(NOTFOUND)
000066                       ERROR(ERRORS) DUPREC(DUPREC) END-EXEC
000067             EXEC CICS RECEIVE MAP('XDFHCMB') END-EXEC.
000068             IF EIBTRMID - 'UPDT' THEN
000069                EXEC CICS READ UPDATE DATASET('FILEA') INTO(FILEA)
000070                            R(DFLD(NUMB IN COMMAREA) END-EXEC
000071               (F FILEREC IN FILEA NOT   F(LEREC IN COMMAREA THEN
000072                  MOVE 'F(LE ALREADY UPDATED - REENTER' TO MSG10

EDIT2   D:\COBOL\SOURCE\* COB――――――――――――――――――――――――――――――――――――――――――――――――
COMMAND ──→                                                      SCROLL ──→ HALF
   NAME     EXT                      SIZE   CDATE      TIME
  ADDENTRY COB                      7680   01/12/87   12:42p
  ADDLMENU COB                      2560   03/26/86    8:02a
  ASKDAMGR COB                      1536   03/29/86   10 33a
  ASKTOP   COB                      1536   11/25/85   11 07p
  CHGSEL   COB                      6144   01/12/87   12:48p
  CKDATE   COB                      1024   01/07/86    8:11p
  DBPACK   COB                      2048   10/30/85    9:47p
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Netvisualyzer: Seeing in real time is believing

BY JOANIE M. WEXLER
CW STAFF

CAMBRIDGE, Mass. — Silicon Graphics, Inc. has leveraged its computing and graphics technology into a system that lets companies see graphically what is happening on their local-area networks in real time.

The company's Netvisualyzer, announced early this month, is reportedly a step up from the current generation of protocol analyzers, with the potential to develop into a full-blown enterprisewide system for centrally managing heterogeneous networks.

The offering consists of data station and display station software, both of which run on Silicon Graphics workstations and servers. The vendor said the products compete with currently available protocol analyzers such as Network General, Inc.'s Sniffer Network Analyzer and Novell, Inc.'s Lanalyzer.

Current generation protocol analyzers must be plugged into the network segment they are monitoring. Many also provide bit-stream — rather than English text — decodes, so users have to be technically savvy to interpret the data. Novell, however, released a version of its Lanalyzer late last month that steps users through the testing process and uses English text to describe protocols [CW, July 30].

Where Novell added text, however, Silicon Graphics has added three-dimensional color visuals to network analyzers.

"The easier the user interface is, the better," said Jim McCabe, a project leader for network development at NASA-Ames Research Center, a Netvisualyzer beta-test site.

"Using the graphics," he said, "a network manager can get a lot of information and then call in the hard-core network gurus who can do the interpreting of the text." McCabe has been monitoring 14 Ethernet and Synoptics, Inc. Lattisnet networks with the products.

He added that "as a first stab at a platform for the ultimate network manager, it's very good, but it isn't complete yet." He cited the product's current inability to poll Simple Network Management Protocol management information bases as one area that could be enhanced.

While Netvisualyzer will reportedly monitor networks running different operating systems, the product currently only runs on Silicon Graphics computers running Irix, the vendor's version of Unix.

A minimum system configuration for the Netvisualyzer Data Station is $12,490, and a minimum configuration for the Display Station is $28,590.

FDDI alternatives dragging

BY JOANIE M. WEXLER
CW STAFF

BOSTON — Efforts to create lower-cost alternatives to the 100M bit/sec. Fiber Distributed Data Interface (FDDI) network standard got off to a sluggish start at two back-to-back ad hoc committee meetings this month.

The meetings, which addressed the feasibility of running data at such high speeds over twisted-pair wiring as well as less expensive fiber alternatives, attracted about 150 vendors. New technology presentations were made by Chipcom Corp. and Digital Equipment Corp. for running 100M bit/sec. over alternative media.

Ilan Carmi, engineering director at Chipcom, headed the twisted-pair ad hoc discussion and said it would be very optimistic to hope for an FDDI alternative media proposal to reach the ballot stage within a year.

Bill Cronin, principal engineer at DEC's local-area network engineering group, will head a group that will prepare a project proposal for the American National Standards Institute FDDI standards committee at its mid-October meeting. The committee will review the proposal to determine if it merits forming a working group to create new FDDI standards for using alternative media.

"Two big issues were left," said Bruce McClure, chairman of Synernetics, Inc. in North Billerica, Mass. "Do you create new standards for both shielded and unshielded twisted-pair or just shielded? And if you do unshielded, which unshielded do you do?"

McClure, who headed the meeting on fiber alternatives, said he thinks it is important to keep the number of different standards to a minimum and make them all compatible in order to aggregate FDDI volume rather than splinter it.

"Lack of volume is why the components are so expensive," McClure said. He added that a twisted-pair option would bring cost pressure to fiber vendors. "When there's not much volume, a vendor doesn't have a big incentive to lower costs," he added.

Monitors run HP's own Unix

BY J. A. SAVAGE
and ELISABETH HORWITT
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. has announced a performance monitoring system for Unix — but only for its own HP/UX flavor of the operating system standard. The company has promised, however, to eventually offer versions that run on all Unix platforms.

HP also announced a service under which it will manage customers' multivendor local-area network operations. The company's Unix performance monitor, HP Glanceplus/UX, runs on the HP 9000 series with the HP-UX operating system Version 7 or later.

HP is attempting to answer the call of capacity managers struggling to accurately predict when CPUs are near capacity on Unix systems. As hardware based on open standards creeps into the data center, capacity managers have either had to write their own capacity management software or guess when CPUs are near capacity. In contrast, mainframes have a bounty of capacity management tools.

Managers said that accurate procurement of Unix systems has been hindered by a lack of monitoring software. Michael Covert, senior computer system specialist at Chemical Abstract Service in Columbus, Ohio, complained bitterly about it at last December's International Conference on Management and Performance Evaluation of Computer Systems in Reno, Nev. Covert has a homegrown program that sends data from his Digital Equipment Corp. VAXs running Ultrix out to a mainframe, where it is compiled into reports.

HP is the second vendor to offer monitoring tools that run only on the company's own version of Unix. In May, Sun Microsystems, Inc. announced its Sparcserver Manager, which runs only on Sun's servers. At the time, Sun Chief Executive Officer Scott McNealy said his company would not unbundle the software to be used on open systems. Instead, he said, it would be a "value added" to Sun's line.

HP IS THE second vendor to offer monitoring tools that run only on the company's own version of Unix.

Despite McNealy's promise, Sun will attempt to unbundle when it solidifies its operating system on AT&T Unix System V, said Dave Taber, server software manager. It is now changing from Sun O/S to System V. "You'd be crazy not to [unbundle]," he said. "You'll have a dead product in however many months if you don't."

HP, meanwhile, has submitted to the Open Software Foundation and Unix International the changes it made to the HP/UX kernel to allow the monitoring software to run, according to Susan Cook, product marketing manager at HP's Worldwide Customer Support Operations. If accepted, she said, the software will become available on the open market.

HP's new product includes an on-line mode for active monitoring. It also has screens for observing global levels for CPUs, disks and memory, as well as individual processes and individual users on a network. "It might tell you to change configurations or add a server," Cook said.

The vendor's new HP LAN Operations program will manage customers' LAN setups for up to 24 hours a day under a special service contract, the firm said. In addition to network problem resolution and monitoring, the program offers network planning and design consultation, implementation and training services.

HP will provide monthly LAN status and performance reports, as well as a 24-hour-a-day help line for technical assistance. Under one program option, an HP network administrator will work full-time at a customer site.

The service is capable of managing multivendor LANs based on Ethernet or IEEE 802.3 standards and on Transmission Control Protocol/Internet Protocol, HP said. The program uses HP Openview network management capabilities and test-measurement equipment such as HP Lanprobe, as well as internal support tools.

Globalization

FROM PAGE 45

"the principal driver behind the global network was not competitive advantage but cost-efficiency" at the majority of firms surveyed, Synnott said.

At many companies, different business groups had been implementing international connections on an as-needed basis.

Such companies often "didn't know how much they had been spending," Synnott said. "When they added up the figures, they were shocked and decided to find a way to consolidate the networks, so the global network backbone was born."

Such companies, which made up significant portions of both the study group and clients of Peat Marwick's report, were still struggling with "how to sort out the complicated regulatory and approval process in each country they did business in," Synnott said.

Harried by the intricacies of international networking diplomacy and frustrated by the lack of consistent network quality and support overseas, many firms would gladly outsource the management and operation of their global networks.

Indeed, some have, Synnott said; Benetton's network, for example, is provided by General Electric Information Services.

Right now, many companies are "skeptical that carriers can provide" everything they need in a global network and are using private facilities whenever possible, Synnott said.

However, this attitude is because of change as the global networking market continues to open up to competition and public carriers bring out enhanced services such as Integrated Services Digital Network and virtual private networks, he added.

"Users are not interested in being their own telephone companies," Synnott said. "Running global private networks is a complicated business," and the shortage of good technical people is even more acute overseas than it is domestically.

Meanwhile, an increasing number of companies are creating a new job title: global network manager. In contrast to the telecommunications manager, who is responsible for day-to-day corporate network operations, the global network manager is responsible for formulating a global networking strategy and architecture, Synnott said.

With a typical staff of five to 10 people, the global manager "generally does not report to the telecommunications manager, but to the manager's boss — the CIO if you will — or outside of the information technology organization completely, to strategic planning," Synnott said.

The 1,100-page, one-year study included interviews with more than 30 overseas and domestic carriers as well as 50 global corporations, Synnott said.

Clients for whom the study was commissioned include vendors such as AT&T, IBM, Singapore Telecom and MCI Communications Corp., as well as businesses such as American Standard, Brown & Root, Daimler Benz, Shell International and Lloyds of London.

Microsoft

CONTINUED FROM PAGE 45

to say how much will be spent on raising the product's profile, but analysts have estimated that Microsoft may sink as much as $70 million into LAN Manager this year alone. Much of the time and money will go toward direct marketing of LAN Manager and building a chain of 600 domestic value-added resellers for the product.

"Novell did an important thing in the 1980s by building up its second channel distribution," said Steve Ballmer, senior vice-president of systems software at Microsoft. "There are people who are in business to sell Netware. Someone told me recently that there are now more Netware resellers than 7-Eleven stores."

One way that Microsoft will seek to differentiate its reseller strategy from Novell's is by signing up only those resellers who are willing to go through its training, support and customer satisfaction programs, Ballmer said. This last program involves Microsoft calling up customers for feedback on a given reseller's performance, he added: "If there is a problem, we call the dealer."

SCOTT PAPER HAS had difficulty getting products such as Microsoft Windows Version 3.0 to work well with IBM and Digital Equipment Corp. networks.

Systems manager Wendell Harris at Scott Paper Co. in Everett, Wash., recommended that Microsoft put its resources behind making existing products compatible with other network elements. Harris said Scott Paper has had difficulty getting products such as Microsoft Windows Version 3.0 to work well with IBM and Digital Equipment Corp. networks.

Analyst Frank Dzubeck, president of Communications Network Architects, Inc. in Washington, D.C., said that the computer industry is rife with success stories built on massive infusions of bodies and money. He said that Microsoft will carve a significant market share for LAN Manager during the next year or two. Dzubeck added that he thinks Microsoft will claim 20% of the LAN market by early 1992.

For Soskin, the tempo of the race is less important than the timing of it. Microsoft joined a contest that is not only already in progress but is also evolving into a new kind of competition, she said.

"The center of gravity in networking is moving away from network operating systems. There's more [interconnecting LANs over wide-area networks] going on out here," she said.

Frank Michnoff, an analyst at Meta Group, Inc., said Microsoft may surprise its critics. "You don't want to underestimate Microsoft. They have unbelievable marketing clout," he said. He also said that the 40% annual growth in the LAN market leaves no doubt that LAN Manager will grow with the market.

"It's hard to bet against Microsoft," First Boston Corp. PC analyst Charlie Wolf agreed. "It is so well disciplined and has enormous momentum." He pointed out the company's willingness to stick with Windows for five years before it delivered a successful version.

However, this might be the one time when Microsoft's clout, resources and momentum prove impotent, Michnoff said. "They are up against users who don't always buy into the big guys anymore for their solutions."

Information systems professionals are demanding network operating systems that bundle distributed naming services, integration with IBM systems, electronic mail and comprehensive service and support, observers noted.

"What they need to do is license [Novell's] Netware source code and sell Netware," said Richard Retin, a senior technical analyst at Wells Fargo Bank NA in San Francisco.

Discussing Microsoft's chances of overshadowing Novell by mid-decade, Retin said: "It's totally ridiculous. There's too much loyalty among [Novell's] customers and resellers. Even Microsoft can't dislodge them."

Michnoff agreed that LAN Manager faces rough going in the short term. And it may be only the short term that Microsoft has. He and several other observers said enterprisewide standardization on one LAN operating system is occurring and should crest during the next three or four years.

Michnoff predicted that it will be 1995 before LAN Manager can dominate the market.

Given its resources and possible tie-ins with OS/2 and other products, Wolf said, Microsoft "should reasonably capture 15% to 20% [of the LAN market] within three years," including OEM sales.

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Goal Systems

Freeland

CONTINUED FROM PAGE 45

was purchased from US West, but the long-awaited, internally developed graphical interface is expected in September.) BGS Systems' Bestnet feeds data collected by Netview into network performance tuning and optimization software packages.

Peregrine Systems' NAPA product will automatically capture and filter Netview alerts to generate help desk trouble tickets.

Boole & Babbage has applied expert system techniques to allow comparatively nontechnical analysts to use trouble-correction techniques that normally would be employed by more experienced analysts.

Unfortunately, it is not only inexperienced network managers who may need extra software help in interpreting Netview data.

Netview itself does little to relate individual alerts to the broader context of the entire network system. For example, Netview alerts might indicate that 15 network components are down but not that a controller is down at location X and that 14 devices dependent on the controller have dropped out because of it.

Netview does not match a nonfunctioning device with the vendor or technician responsible for its maintenance or its past performance history, nor does it provide a way to measure the cost of the outage in real business terms, such as in number of sessions terminated.

Many network managers are beginning to address these problems. Using Netview programming tools and third-party software, they are grouping Netview alerts together based on network components, and they are programming the system to eliminate alerts from consideration as soon as automatic recovery techniques solve the problem.

Software products slated for introduction by the end of the year promise to greatly lighten the task of integrating and managing Netview information.

For instance, one planned product uses a network topology database to categorize Netview alerts, pinpoint the likely cause of the problem and identify dependent components that crashed along with the primary device.

Another product will use a serial number to identify individual devices to both Netview and data center management applications. Besides making it easier to locate devices physically, the feature will facilitate management of network inventory and maintenance, change records and help desk problems.

> UNFORTUNATELY, it is not only inexperienced network managers who may need extra software help in interpreting Netview data.

Other trends to be reflected in upcoming software announcements include improved graphical displays, simpler software interfaces with Netview and an increased emphasis on relating network events in more meaningful terms, such as number of users or resources not able to use network components.

Netview has long had a large capacity to collect and spew out network management information. As applications slowly add the interpretative power to match this capacity, it is certain that Netview's output will be put to better and better use.

Indeed, the seesaw is due to tip the other way, as increasingly sophisticated analysis software — and users — demand even more exhaustive network information from Netview. This will probably occur fairly quickly.

Freeland is a principal at Spectrum Automation, a San Diego-based network management consulting firm.

BIT BLAST

Bytex teams up with Codex

Matrix switchmaker **Bytex Corp.** said it has entered into a value-added reseller agreement with Codex Corp., which will reportedly offer the Bytex product to enhance its range of integrated systems.

Bytex also said recently it intends to expand into the local-area networking business, and its first step in that direction has been to acquire Vance Systems Corp., maker of the ATS LAN 1000 protocol analyzer. LANs are competing with the saturated matrix switch market, because LANs only require one port connection to the switch instead of separate, multiple-port connections for each computer.

Olicom USA said it retested its 4/16M bit/sec. token-ring network adapter cards after **Madge Networks Ltd.** announced that a faulty Texas Instruments, Inc. chip caused Madge to recall 2,000 boards. Olicom said its boards, which also use the TI Falcon chip, work fine and are running in networks as large as 120 nodes.

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NEW PRODUCTS

Links

T4 Systems, Inc. has released T4 Multilink, a multiport unit that lets users transmit documents and application screens from a mainframe to a Group III facsimile machine.

The product uses simple printer emulation to provide user compatibility with IBM, Digital Equipment Corp., Hewlett-Packard Co. and Unisys Corp. systems without extensive software modifications.

Pricing for a single-port T4 Link unit begins at $12,395. T4 Multilink is available in four models ranging from $29,995 to $44,995, depending on number of ports.

T4 Systems
8901 Kanis Road
Little Rock, Ark. 72205
(501) 227-6637

Hewlett-Packard Co. has announced four interfaces that provide testing access to the Integrated Services Digital Network (ISDN) at the Basic and Primary Rate Interface levels.

The four products include the HP 18281A ($2,000), an ISDN Basic Rate monitor and simulation interface, and three Primary Rate Interfaces: the HP 18282A 1.544M bit/sec. interface ($2,500); the HP 18283A 2.048M bit/sec. interface with three pin connectors ($2,500); and the HP 18284A 2.048M bit/sec. interface ($2,500).

The products were designed to enhance the HP 4952A wide-area network protocol analyzer, which sells for $8,540.

HP
3000 Hanover St.
Palo Alto, Calif. 94304
(800) 752-0900

Hughes LAN Systems, Inc. has announced its Linc/Term HUB series of integrated terminal server modules that feature asynchronous terminal connectivity directly into the chassis of a third-party smart-wiring hub.

The series includes Linc/Term 3208, TSRV-8 and 5208. Each module supports up to eight RS-232 devices and the industry-standard Simple Network Monitoring Protocol.

List price is $1,395 for each module.

Hughes LAN Systems
1225 Charleston Road
Mountain View, Calif.
94043
(415) 966-7300

Customer-premises equipment

OST, Inc. has introduced a board-level Integrated Services Digital Network (ISDN) terminal adapter designed for use with IBM Personal Computer XTs, ATs or compatibles.

The OST PC SNET card provides ISDN Basic Rate access for PC users and features five types of communications applications supported by its S or Basic Rate Interface: X.25, Open Systems Interconnect, transparent, asynchronous and local-area network.

A single card yields an aggregate throughput of 144K bit/sec., the vendor said. PC SNET is priced at $1,695.

OST
14225 Sullyfield Circle
Chantilly, Va. 22021
(703) 817-0400

Gateways, bridges, routers

Multi-Tech Systems, Inc. has announced an asynchronous communications gateway for IBM Netbios-compatible local-area networks.

The Multi-Com-Async Gateway comprises a multiport serial adapter card, redirector cards or redirector-equipped network interface cards and software. It provides users with modem sharing for dial-in or dial-out operations and supports four 2,400 bit/sec. modems using Microcom Networking Protocol Class 5 data compression.

The product costs $1,075 plus the price of four network interface cards.

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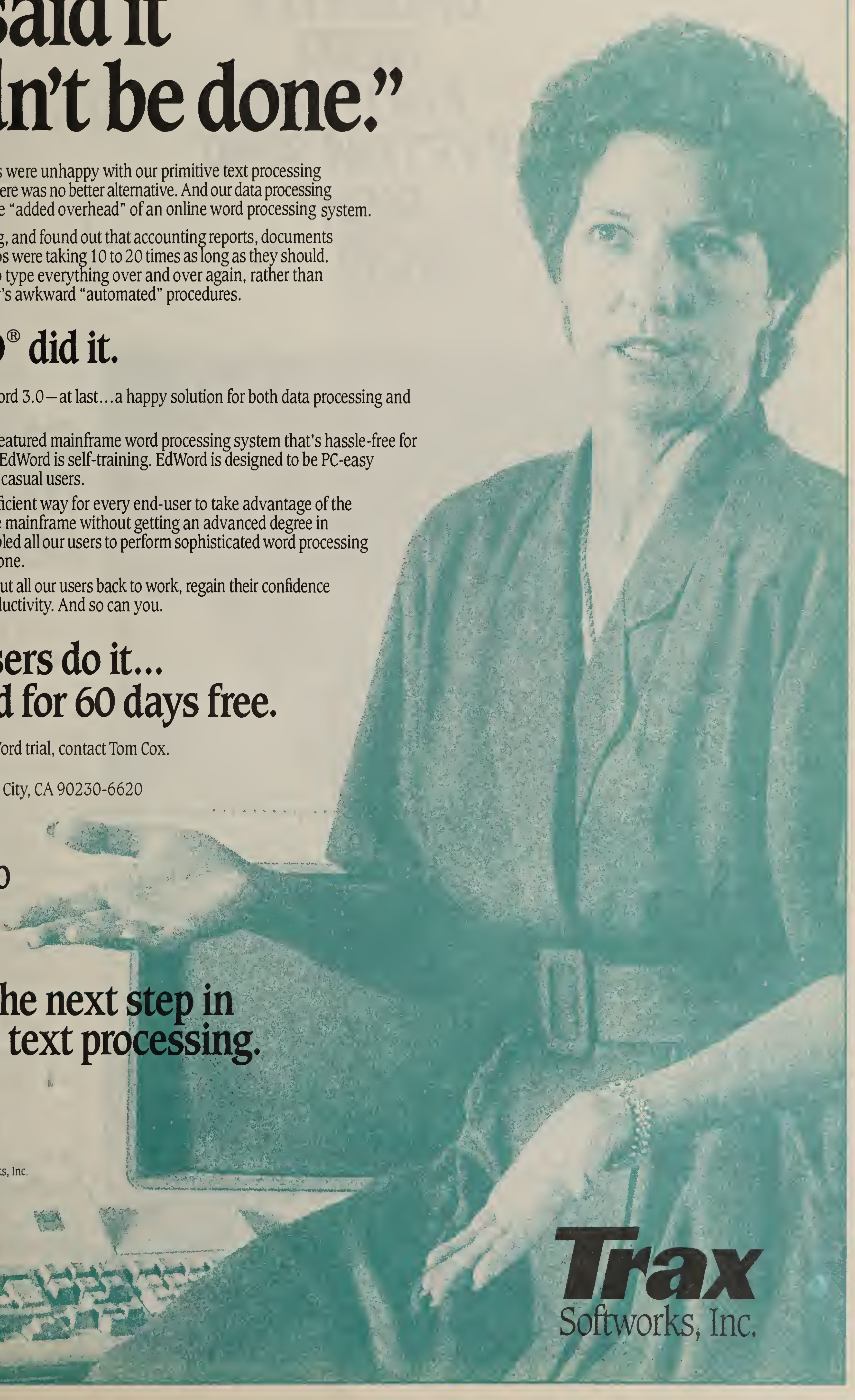

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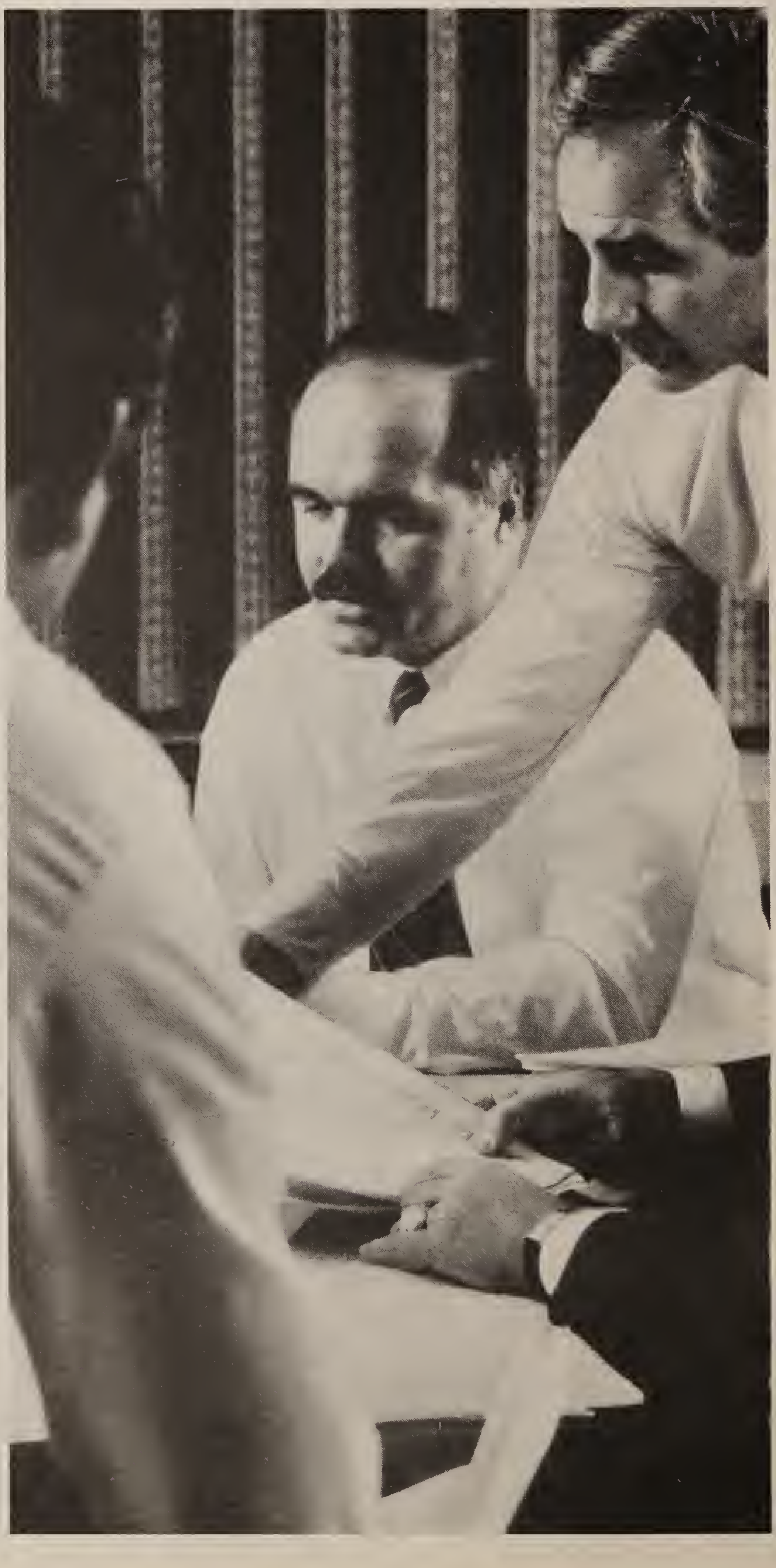

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MANAGER'S JOURNAL

EXECUTIVE TRACK

Richard A. Bolandz has joined **PHH Corp.** in Hunt Valley, Md., as vice-president, information technology and strategy — a newly created position. He reports to Eugene A. Arbaugh, senior vice-president of marketing.

Bolandz, 34, was formerly director of the technology-enabled business transformation practice at the Index Group, Inc. consultancy in Cambridge, Mass. Before that, he held senior positions at consulting firms MLI Ltd. and Booz, Allen & Hamilton, Inc.

Bolandz holds an undergraduate degree from Boston College and a master's degree in foreign service from Georgetown University. He also attended the American University MBA program.

……

Shirley E. Valentine has been named vice-president of information systems at **Kraft USA,** an operating unit of Kraft General Foods in Glenview, Ill. She reports to Robert V. Richards, vice-president of information services at Kraft General Foods.

Valentine, 36, was most recently director, corporate systems, at Kraft General Foods for one year. She joined the firm in 1988 as director, business systems. Before joining Kraft, she was senior manager in the consulting division at Arthur Andersen & Co. for 10 years.

Valentine holds a bachelor's degree in industrial management from Purdue University and an MBA in finance from Indiana University.

……

Harley H. Dietrich Jr. has been named senior account executive at **Compusource,** a vendor of IS services in Cary, N.C.

Dietrich has 15 years of experience in IS and was senior systems programmer at the former National Steel Corp., now National Intergroup, Inc., in Pittsburgh. When National Steel spun off its IS as services vendor Genix Corp. in 1984, Dietrich became account manager and later marketing manager for Genix.

He attended Robert Morris College in Pittsburgh.

Building IS from the ground up

Taisei's Nabeshima knew the construction business inside out before he took control of IS

BY PAUL GILLIN
CW STAFF

PROFILE: Haruo Nabeshima

Kaku Kurita/Gamma Liaison

Position: *General manager of information systems, Taisei Corp.*
Mission: *Integrating information technology into Japan's third-largest construction firm*

Haruo Nabeshima looks out the window of the employee lounge on the 52nd story of Taisei Corp.'s downtown Tokyo skyscraper and sees a chance to make a difference.

"I'm not the kind of person to work in a lab," says the 52-year-old general manager of information systems at the Japanese construction giant. "If I can be part of building beautiful structures all over Japan, that is how I can contribute to my country."

It's not the kind of talk that is normally associated with information systems, but Nabeshima is not the typical IS professional. In fact, he has spent only three years of his 30-year career at Taisei in that function. The rest he has spent learning the construction business from the foundation up.

His jobs at Taisei have led him across Asia, the Middle East and North America. He has survived a battle with hepatitis, nearly been thrown in a Saudi Arabian jail, hosted sushi parties in Montreal and attended the World Series in Pittsburgh.

Now, as head of the 125-person IS department at Taisei, Japan's third largest construction firm, he manages the delicate task of integrating information technology into one of the most labor-intensive industries in the world.

Nabeshima's career has had him hopping from job to job and country to country for Taisei, working in virtually every aspect of construction project management. The constant transfers may seem strange to Americans, who are used to working their way up through the ranks of their discipline, but they are common by Japanese standards. "If a man stays in the same department a long time, his productivity eventually goes flat," Nabeshima says. "If he is transferred around the organization, his productivity falls briefly but then goes sharply up."

Continued on page 61

Soviets poised to learn from our mistakes

BY ALAN J. RYAN
CW STAFF

A state-run organization with 60,000 employees, 350 plants and no technology to manage any of it was one of the incredible findings of Al Mingione on his recent trip to the Soviet Union.

Mingione, a member of the Association for Systems Management's (ASM) international board of directors, spent some time in the USSR last month and found the Soviets to be well-educated on technology trends, computer science and math.

However, he said, "There is a scarcity of computers, and the computers they do have they use for model building and expert systems."

Mingione added that the Soviets have few commercial applications and are lacking in critical business systems analysis skills.

Mingione, who is also director of information resource management services at DPCS of Northern California in San Jose, Calif., was on a fact-finding mission to determine avenues for potential U.S./Soviet alliances in the field of information resource management. The visit was sponsored by the Cleveland-based ASM and San Jose State University.

Beyond seeking business applications for uses such as scheduling, inventory, maintenance management and capacity planning, Mingione said, he discovered that the Soviets he had met were very interested in learning how to use information systems to help manage their own businesses.

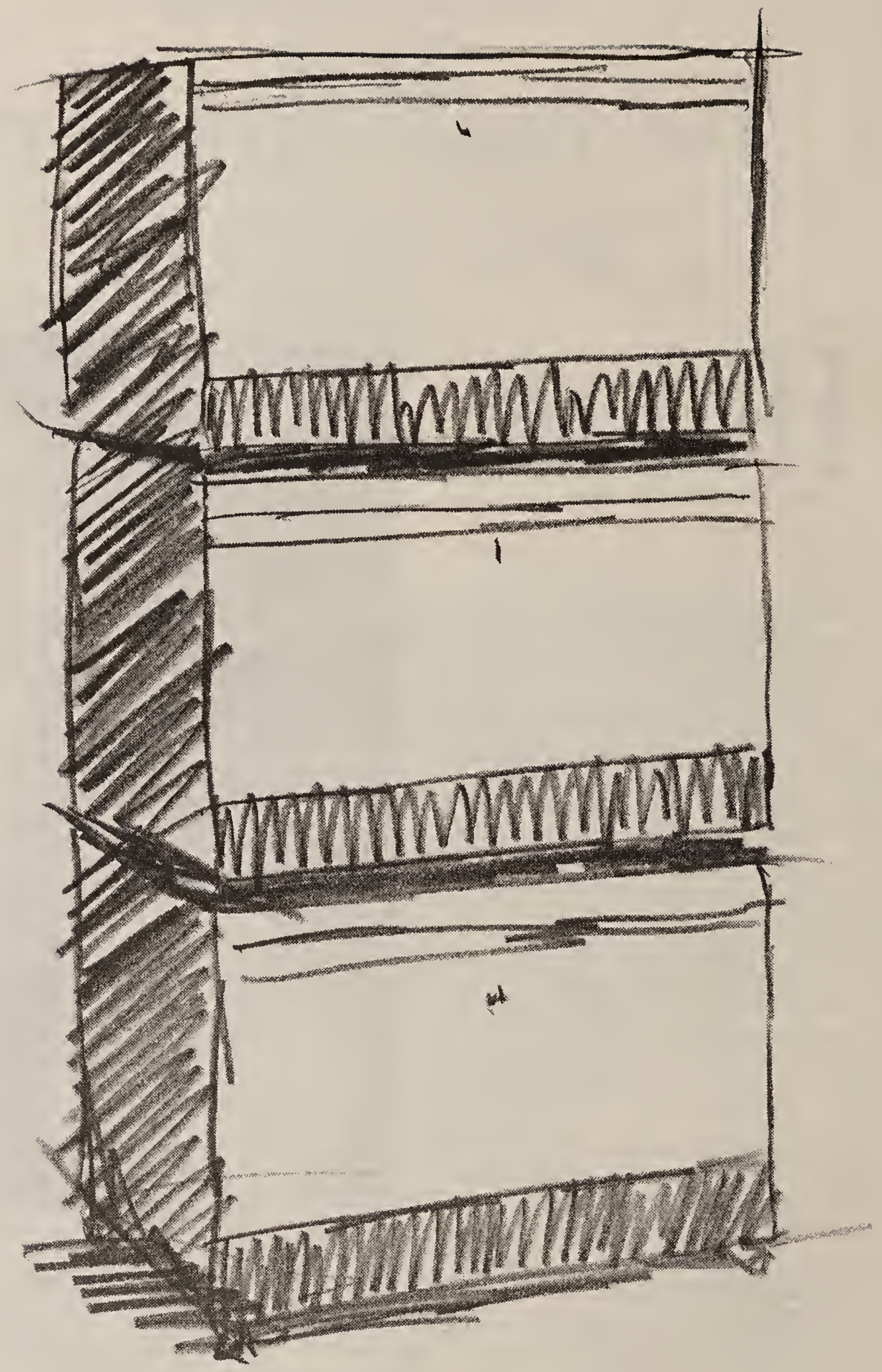
Other goals the Soviets have include finding ways to convert the country's military technology to civilian applications and training the Soviet professional who will manage the acquisition and use of technology.

Some ideas for forging U.S./Soviet alliances include forming an ASM chapter in Moscow for information exchange that would include a mentoring program and developing a program in which Soviet professionals would be subcontracted for upgrading or enhancing American business systems.

In some ways, the Soviets are at an advantage by being behind in the use of technology, Mingione said, because they can learn from the lessons of the U.S. in its applications of computer technology.

"They have problems and lots of work ahead of them, but the good news is they can start with a clean slate," he said.

"[The U.S. was] learning as we were going along, but they can benefit from our mistakes."



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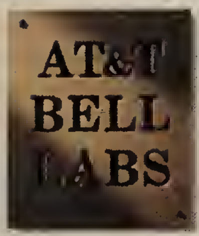

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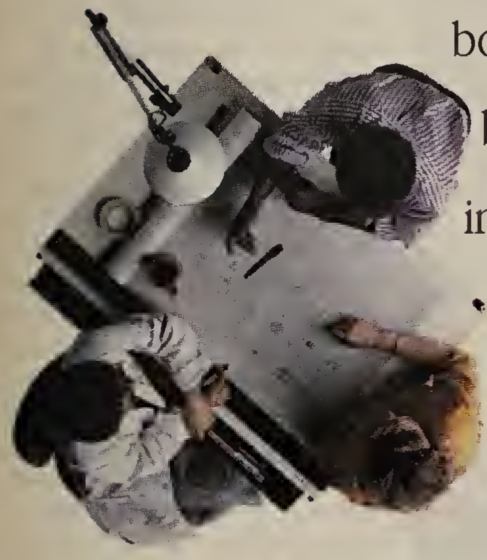

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COMMENTARY

Gary H. Anthes

Lessons learned in a time of war

The enemy rockets always came at night, but they were not well-aimed and rarely did much damage. After a buddy was bitten by a poisonous snake as he took cover in a bunker during a red alert, I decided to stay in bed whenever the rockets came.

But just before dawn on Feb. 24, 1970, the Viet Cong got lucky, and I learned about disaster recovery.

A rocket launched from somewhere in the Vietnamese jungle hit the U.S. Navy supply depot near Da Nang, somehow landing on a stack of 6,000 antitank mines. The exploding mines sent shock waves across the depot, flattening the data processing center where I worked. Secondary explosions continued for 13 hours.

When I heard the mammoth explosion at my camp several miles away, I immediately thought of the gray case holding the five tapes that were updated each day and taken off-site in case computer processing ever had to be moved to the Navy's emergency facility in the Philippines.

But the case holding the backup data files wasn't in its familiar spot by my bed; I had forgotten to take it with me the previous evening. With visions of court-martials dancing in my head, I drove to the supply depot to help in the cleanup and recovery effort.

Although the building that housed the computer center had collapsed, the IBM 1401 computer and its coterie of electromechanical punch-card machines seemed more or less intact, though covered with tons of debris. The case holding the magnetic tapes was where I had left it, apparently unharmed.

Two civilian IBM engineers soon arrived on the scene, and if they slept at all during the next few days, it wasn't apparent. The computer was wheeled to an intact warehouse nearby, where Navy Seabees worked around the clock to install a raised floor and air-conditioning. Thanks to these heroic efforts and to IBM's industrial-strength vacuum cleaners, the equipment was cleaned up and working again within a week.

> WHEN I heard the mammoth explosion at my camp several miles away, I immediately thought of the gray case holding the five tapes that were updated each day.

The IBM 1401 — a predecessor to the System 360 — had all the power and memory of today's arcade games. But it ran three shifts a day, seven days a week, keeping track of an inventory of 105,000 items supporting requisitions worth $32 million per month.

Although the computer and its inventory control applications were critical to the Navy's mission of supplying combat troops, disaster recovery was executed so quickly that Navy brass elected not to send me to the Philippines with the backup tapes. Thus, I escaped a court martial and never learned whether the explosions had jiggled the tapes' bits into alphabet soup.

There are some lessons in all of this for today's data center manager, none of them having to do with Viet Cong rockets, antitank mines or poisonous snakes. First, expect the unexpected. Second, have a gold-plated service contract backed up by dedicated, competent people. Finally, if you're the one entrusted with the case of backup tapes — don't leave work without it.

Anthes, *Computerworld's* Washington, D.C., correspondent, is a former U.S. Navy Lt. j.g. and was assistant director of data processing at the Navy Supply Depot in Vietnam.

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Nabeshima

CONTINUED FROM PAGE 57

Nabeshima has worked on the user side of technology for most of his career since joining Taisei shortly after graduating from the architecture program of prestigious Tokyo University in 1961.

Like many Japanese, he chose an employer expecting to spend his career there. At Taisei, that has meant a lot of time on the road. "In Japanese companies, it is more of an honor to work on-site than in the office," says Carla-Jean Ebenstein of the planning and research department at Taisei's international division. "That is the way you learn the inner workings of the business."

Nabeshima's international odyssey began in 1968, when he signed on to a 2½-year project in Saudi Arabia. Arriving with no knowledge of the local language or customs, he worked his way up from building concrete forms to managing staffing for the entire project. The work was hot, strenuous and even dangerous. Nabeshima recalls once being dragged before a Saudi Arabian judge and threatened with prison for firing a local worker.

> "BEFORE I JOINED the department, I saw the computer as Buddha and the IS people as high priests."
>
> HARUO NABESHIMA
> TAISEI

In the early 1970s, he spent a year in Pittsburgh and Alabama, where he first came into contact with computers. "I thought, 'We must have these,' " he says.

He returned to the Middle East in 1972 to pursue projects in Kuwait, Qatar, Iraq and the United Arab Emirates, but he spent most of the next seven years in Saudi Arabia. He ultimately rose to be Taisei's director of Saudi Arabian operations, and in 1985, he was named manager of the project sections for the entire Middle East and Africa.

During the years in the Middle East, his constant companion was a computerized system for project cost accounting. The system was deployed on every project Nabeshima managed. Apparently, it caught the eye of corporate headquarters, because Nabeshima was brought back to Tokyo in 1987 as director of corporate IS. In typical Japanese corporate style, the transfer into IS was not a matter of personal choice. "The company decided it for me," he says.

Nabeshima says his limited computing knowledge has not prevented him from making his mark on Taisei's IS operations. "Before I joined the department, I saw the computer as Buddha and the IS people as high priests," he says. "But I think the philosophy should be service to the customers."

In line with that, he removed the locks from IS department doors and convened needs assessment sessions with users. He cut charges for mainframe time by 80%, tripled CPU power by upgrading to an IBM 3090-300S mainframe and went to 24-hour computer access.

His justification was that "if we provided better services, computer usage would go up," he says. "And it did, very dramatically." Mainframe use doubled almost immediately from 60 to 120 hours per month and rose to a peak of 400 hours this past April.

Faith in technology has made Taisei a showcase of computer innovation. Its employees go to work armed with information tools for everything from estimating project costs to creating solid-model building designs that the users can "walk through" as if they were inside the building. Taisei has just completed a four-year project to develop an integrated computer-aided design and analysis system that stores and models virtually all information about a project from conception to completion [CW Special Report, Aug. 13]. The company is now working on expanding its already extensive communications network to link computers at the hundreds of project sites around the world.

As a manager, Nabeshima emphasizes personal discipline and a willingness to take risks. "He's very disciplined, but he doesn't expect anything of others he wouldn't expect of himself," Ebenstein says. Nabeshima rises at 5 a.m. every morning and exercises for nearly an hour. He times the one-hour train ride from his Kawasaki City home to get him into the office by 8 a.m., an hour early by Japanese standards. "I do this so I can be alert and cheerful when I see my employees at 9," he says.

Although his English is superb, he continues to take night classes in the language. He manages to play golf about 50 times per year, which is no small accomplishment in a country where golfers can line up for hours to pay $250 for 18 holes.

Nabeshima is especially proud of his relations with his employees. "My policies are to treat workers very fairly, but I still believe in being a strong boss," he says. An evaluation system he initiated for IS department employees recognizes accomplishments but doesn't penalize failures. "People should be rewarded for taking risks and being aggressive," he says.

Throughout it all, Nabeshima displays a constant smile and sunny disposition. He is fond of telling visitors that his bout with hepatitis taught him that he should live each day to the fullest. "I believe I have 4,500 days left on this earth," he says. "There is no excuse for wasting time."

To find out how easy it is to convert DCA's new IRMA from standard to MCA bus, flip the page.

CALENDAR

Traditional glass house architectures will be altered as the decade of the '90s evolves because of improving price/performance of communications and applications-specific systems. The changes will require new strategies for management of both.

Addressing those issues will be Meta Group, Inc.'s "The Expanding Glass House of the '90s" conference to be held Sept. 24-26 in Toronto.

For more information, contact Meta Group in Westport, Conn., (203) 226-6382.

SEPT. 16-22

American Bankers Association's 1990 National Bank Card Conference. New York, Sept. 16-19 — Contact: ABA, Washington, D.C. (202) 663-5000.

Management Systems Council Fall Conference. Hilton Head, S.C., Sept. 16-19 — Contact: Joanne Rang, Management Systems Council, Alexandria, Va. (703) 838-1721.

Midwest DB-DC Users Group Conference. Grand Rapids, Mich., Sept. 16-19 — Contact: Fox-King and Associates, Troy, Mich. (616) 774-2000.

Telecon '90 — The Evolving Telecommunications Environment. Montreal, Sept. 16-20 — Contact: Kimberly Mungham, Canadian Business Telecommunications Alliance, Toronto, Ont., Canada (416) 865-9993.

Federal Computer Conference. Washington, D.C., Sept. 17-19 — Contact: Stephen O'Keefe, National Council for Education on Information Strategies, Silver Spring, Md., (301) 587-9344.

Financial Document Security, Check Fraud and the New Image Technology for Check Design and Check Processing. Jackson Hole/Yellowstone National Park, Wyo., Sept. 17-19 — Contact: MICR Institute, Atco, N.J. (609) 435-0090.

Graphics & Multimedia Conference and Exposition. Long Beach, Calif., Sept. 17-19 — Contact: Exposition Management, Waltham, Mass. (617) 290-0400.

Internationalization of Telecommunication: Making Today's Choices in Light of Tomorrow's Changes. Minneapolis, Sept. 18-19 — Contact: Randy Young, Minnesota State Planning Agency, St. Paul, Minn. (612) 296-8264.

The Telco-Cable II Conference. Washington, D.C., Sept. 18-19 — Contact: Telecommunications Reports, Washington, D.C. (202) 347-2970.

Electronic Publishing '90 Conference. Gaithersburg, Md., Sept. 18-20 — Contact: National Institute of Standards and Technology, Gaithersburg, Md. (301) 977-6711.

Working with Personal Computer Local-Area Networks Seminar. Milwaukee, Sept. 19-21 — Contact: John Snedeker, Center for Continuing Engineering Education, University of Wisconsin-Milwaukee, Milwaukee, Wis. (414) 227-3120.

Future Winning Positions. Santa Clara, Calif., Sept. 20 — Contact: Dataquest Conference Department, San Jose, Calif. (408) 437-8245.

The Secrets of VMS File I/O Seminar. Amherst, N.Y., Sept. 22 — Contact: U.S. DECUS, Marlboro, Mass. (508) 480-3446.

SEPT. 23-29

Graph Expo '90. New York, Sept. 23-26 — Contact: Graph Expo, Waldorf, Md. (703) 264-7208.

Networking/Unix '90. Atlanta, Sept. 24-25 — Contact: Sue Fredricks, Inforum, Atlanta, Ga. (404) 220-2711.

Third-Party Computer Maintenance. San Francisco, Sept. 24-25 — Contact: Frost and Sullivan, New York, N.Y. (212) 233-1080.

Manufacturing Productivity Conference. Anaheim, Calif., Sept. 24-27 — Contact: Lisa Machnaki, Society of Manufacturing Engineers, Dearborn, Mich. (313) 271-1500.

PC Expo. Chicago, Sept. 25-27 — Contact: H.A. Bruno, Inc., Englewood Cliffs, N.J. (201) 569-8542.

C++ at Work '90 International Conference. Secaucus, N.J., Sept. 25-28 — Contact: Richard Friedman, SIGS Publications, Conference Division, New York, N.Y. (212) 274-0640.

Internetworking for the '90s. Washington, D.C., Sept. 25-28 — Contact: U.S. Professional Development Institute, Silver Spring, Md. (301) 445-4400.

Engineering Documentation Management Systems User Forum '90 Conference. Cincinnati, Sept. 26-28 — Contact: Kalthoff Group, Cincinnati, Ohio (800) 242-6822.

Managing the Global Forces of Change: Strategies for Corporate Success in the '90s. Fort Collins, Colo., Sept. 27 — Contact: National Technology University, Fort Collins, Colo. (303) 484-0565.

Portable Computing and Communications Exposition and Conference. New York, Sept. 27 — Contact: Michael Sullivan, IDG Conference Management Group, Framingham, Mass. (800) 225-4698.

Operations Manager Conference. Laconia, N.H., Sept. 27-28 — Contact: Jerry Lemelin, Portsmouth, N.H. (207) 438-2491.

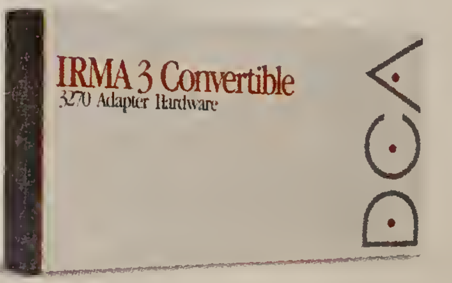
SEPT. 30 - OCT. 6

Benefitting from Systems Integration. New York, Sept. 30-Oct. 2 — Contact: Abbey Chakalis, CMP Conference Group, Manhasset, N.Y. (516) 562-5717.

AFSM Annual World Conference. Chicago, Sept. 30-Oct. 3 — Contact: AFSM International, Ft. Meyers, Fla. (800) 333-9786.

Association of Banyon Users International Conference and Exposition. Orlando, Fla., Sept. 30-Oct. 3 — Contact: Danieli & O'Keefe Associates, Sudbury, Mass. (508) 443-3330.

Information Industry Association's Annual Convention & Exhibition. Boston, Sept. 30-Oct. 3 — Contact: IIA, Washington, D.C. (202) 639-8262.



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EXECUTIVE REPORT

COPING WITH WORK-FORCE CHANGES

Remember that old saying about the best defense?

BY SHERYL KAY

Three years ago, skilled workers were plentiful in Pittsburgh, and companies such as Mellon Bank could take their pick among strong candidates, even when hiring for low-level jobs. Things are different today. Now, says Tim Vigrass, manager of financial systems development, qualified workers are in shorter supply. To fill lower paying positions, "We have to be willing to accept less skilled people and find ways of bringing them up to speed," he explains.

For a newspaper, literacy is always a credibility and marketing issue, but it was never a personnel issue for the *Los Angeles Times* until the publication began to automate production and printing processes. Automation increased the reading and writing component of jobs that had, until then, primarily involved manual crafts. By 1988, the mismatch between existing and required skills had become so pronounced that the company had to do something to close the gap.

Alan Levenson

Neder *runs an on-site literacy program at the* Los Angeles Times *to combat skill-gap problems*

All around the country, employers are either beginning to struggle with, or at least starting to glimpse, work-force changes that have major implications for continued productivity. In an increasing number of instances, companies are looking to information systems to help them cope with these new realities.

"Whether they know it or not, U.S. corporations are facing a changing work force," says Diane Bengston, assistant director of human resources for data processing at Travelers Insurance Co. in Hartford, Conn. "Technology must play a key role in addressing the challenges those changes bring."

James Ware, vice-president of education and organizational effectiveness at Index Group, Inc. in Cambridge, Mass., agrees. "Technology and human resources are the two strategic resources that will separate one company from its competitors during the next 10 years," he says.

Although labor issues, until recently, have received scant attention from IS departments, Ware predicts a sharp uptick in the number of systems created specifically in response to shifts in employee population. "Five years from now, 15% to 20% of application systems may have work-force changes as the driving force behind them."

These systems won't fall into a single, easily classified category, because what's happening to the labor force isn't simple.

Demographic changes certainly play a large and important part. For example, the population as a whole is aging, and that fact has several ramifications. The most obvious is that there are, or soon will be, fewer workers available for entry-level positions of any kind. A less obvious, but equally important, effect is the consequent need for employers to seek workers from a broader spectrum of the population and to work harder to retain experienced employees whose needs and priorities may be changing as they grow older.

A broad spectrum of value changes are also taking place among younger workers, and if employers want to hold on to the high-potential workers they do manage to hire, they will have to address these new values. Chances are that employers will make that effort, because a widespread decline in academic preparedness is looming at a time when many companies are introducing equipment that demands more skills from workers than ever before.

All of these trends, both individually and in combination, will affect the way companies conduct business. In turn, a firm's ability to address these work-force variations will have an impact on how competitive it can be, according to Kathryn J. Hayley, senior manager at Deloitte & Touche in Chicago.

"Companies will have to look increasingly to their technical departments to help fill in the gaps, in several ways, between what their current labor force can do and what future labor forces will be available to them," Hayley says.

One basic way that technology can be used to ameliorate the effects of work-force change is to isolate, before the fact, just where those gaps are likely to materialize.

Using technology to predict future hiring requirements has a long tradition at Ohio Bell Telephone Co. in Cleveland. It is a practice that the Bell operating company inherited from its now-estranged parent. Long before anyone had even thought of

INSIDE

Stretching management resources
Page 70

"Workforce 2000" here already
Page 69

Kay is a business consultant and freelance writer specializing in emerging technologies and human resources.

Best defense

CONTINUED FROM PAGE 63

divestiture, AT&T was using a mainframe software system called Interactive Flow Simulator to forecast the kinds and quantities of employees likely to be needed months and years hence.

After divestiture, Ohio Bell decided to continue the practice on its own and eventually settled on a personal computer-based approach using Lotus Development Corp.'s 1-2-3 spreadsheet, says Lynn McClary, manager for human resource planning. Although the company switched last year to a commercial human resource forecasting package called NAI Forecasting from Nardoni Associates, Inc., McClary is emphatic in her belief that most organizations can and should start with something small and homegrown. The only reason to consider a commercial package, she says, "is if people begin asking questions you can't answer."

Dynamic demographics

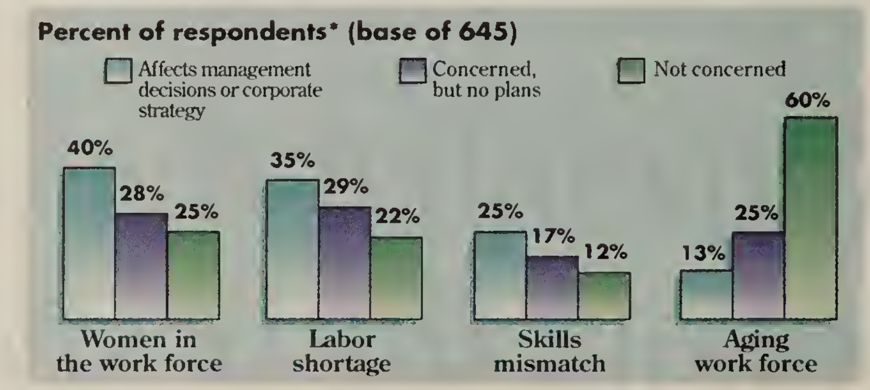
One of McClary's concerns is that a company may be shying away from performing what she sees as an increasingly crucial activity because of the mistaken perception that it entails a large investment. "I think this kind of system is becoming much more critical," she says. "The demographics of the workplace are changing, particularly in terms of aging and retirement. It is becoming more difficult to find qualified people. And because, with new technologies, people are required to know more, the amount of time that it takes to train them is increasing." A forecasting system can't find or train employees for you, McClary says, but it can give you a very valuable jump on "making sure you have the right people in place at the right time."

Sovran Financial Corp. in Norfolk, Va., does not have an information system dedicated to human resource forecasting. It does, however, assign task forces to investigate issues relating to employment needs and hiring practices. One such task force recently investigated work and family life issues for the 1990s and how the firm can help employees strike a balance between the two areas. "At these times, we will frequently go to the systems department and request the reports that we need in order to evaluate the statistics and make manpower projections," says Dorothy Williams, vice-president of human resources information systems.

Ohio Bell and Sovran are ahead of most firms in terms of their awareness of the need to collect information on hiring requirements and workplace issues. In fact, few companies have begun to think at all about how IS can be put into action on work-force issues.

Translating thought into action

Most companies recognize emerging workforce issues, and some have started to incorporate them into their management decision-making or strategic planning



*Percentages do not total 100% because a portion of respondents did not answer certain questions

Source: Towers Perrin and Hudson Institute, Inc. CW Chart: Michael Siggins

Ware says this is probably attributable to executive shortsightedness. "They are too removed, and they don't realize how dependent their company is on skilled labor," he explains.

These priorities are communicated in turn to the company's IS organization, according to Dick Frantzreb, publisher at Advanced Personnel Systems, a developer and distributor of directories of human resources software in Roseville, Calif. "Systems that revolve around training, compensation or recruiting have traditionally been lower on the IS priority list than, say, marketing, company operations or finance," Frantzreb says.

Age Wave's Dychtwald *advocates hiring retirees*

As firms become more acutely aware of demographic changes and begin to experience difficulty hiring skilled workers, IS and human resources staff will share a common interest mandated by top management. "They will start thinking in the same frame of reference, and, in the future, they will have the opportunity to work much closer together," Frantzreb says.

Hayley agrees that most companies will eventually come around to the idea of applying IS aggressively to human resources issues. However, she adds, the companies that have the foresight to get started early will fare the best. "The labor changes are going to come at us like a wall," she says, "and a lot of people are going to be caught unaware."

One area in which Sovran, in particular, is well ahead of the pack is in the use of retirees to supplement its work force.

According to Ken Dychtwald, chairman of Age Wave, Inc. in Emeryville, Calif., retirees not only constitute a large and growing sector of the population but also represent a largely untapped reservoir of talent. There are, he says, 32 million retired persons in the U.S. today, and 40% of them would rather be working.

At Sovran, this phenomenon became apparent several years ago. "We were looking at ways to supplement our work force," Williams says, "and we recognized our retirees were already trained workers — we were losing a wealth of information each time a person retired."

In response to the situation, Sovran set up a separate corporation named On-Call, Inc. to serve as an in-house temporary agency partly staffed by retirees. Then it became necessary to address the issue of benefits for these retirees who had now turned into employees.

Because the company had already implemented a flexible benefits software package from Tesseract Corp., the task was easy. "We set up eligibility codes based on tables that indicate which type of employees are qualified to participate in each given benefit," Williams notes. Retirees were assigned the code letter R so that, when queried, the software would generate screens showing benefits available to retirees.

Dychtwald points to illiteracy as another major factor influencing the work force and hence the hiring practices of corporate America. "Thirty percent or more of those in high school will not graduate this year," he predicts.

Even for those who do graduate high school, further education may not be an option, adds Linda Cunningham, a partner at the consulting firm Heller Hunt and Cunningham in Brookline, Mass. "College costs are rising dramatically," she notes, "which will affect everyone, particularly minorities, who now make up a greater percentage of the population and will begin to enter the work force in greater numbers than ever before."

Into the skills breach

As a result of these trends, Cunningham says, companies will take a much more active role in education. In many instances, firms have begun providing remedial education programs that are heavily dependent on computers and educational software.

The *Los Angeles Times* is already committed to such an effort. To combat its skill-gap problem, the paper decided in 1988 to open an on-site educational facility equipped with IBM's Principles of the Alphabetic Literacy System (PALS). According to Barbara Neder, administrator of the laboratory, this interactive laser video, composed of PCs, the laser and IBM's Infowindow Monitor, has been invaluable in assisting employees involved in production and printing jobs boost their spelling, writing and reading skills.

"We have people with 20 years of experience here who, in the past, did everything manually," Neder says. "These jobs were crafts where most of the people didn't even need a high school diploma. But that has changed dramatically." Press operators have now become computer operators, she explains. They have to be able to read what is on the computer screen as well as tell the computer what to do regarding press settings. They also have to write troubleshooting reports and other memos.

Although the lab was costly to install and to continue to upgrade, Neder says, "It would cost us much more to let those people go who were having problems and to go through hundreds of other applicants who may or may not be qualified." It is much more economical to train a company's current employees, she says, and "These employees, who have gone through PALS, now have a new-found respect for the company."

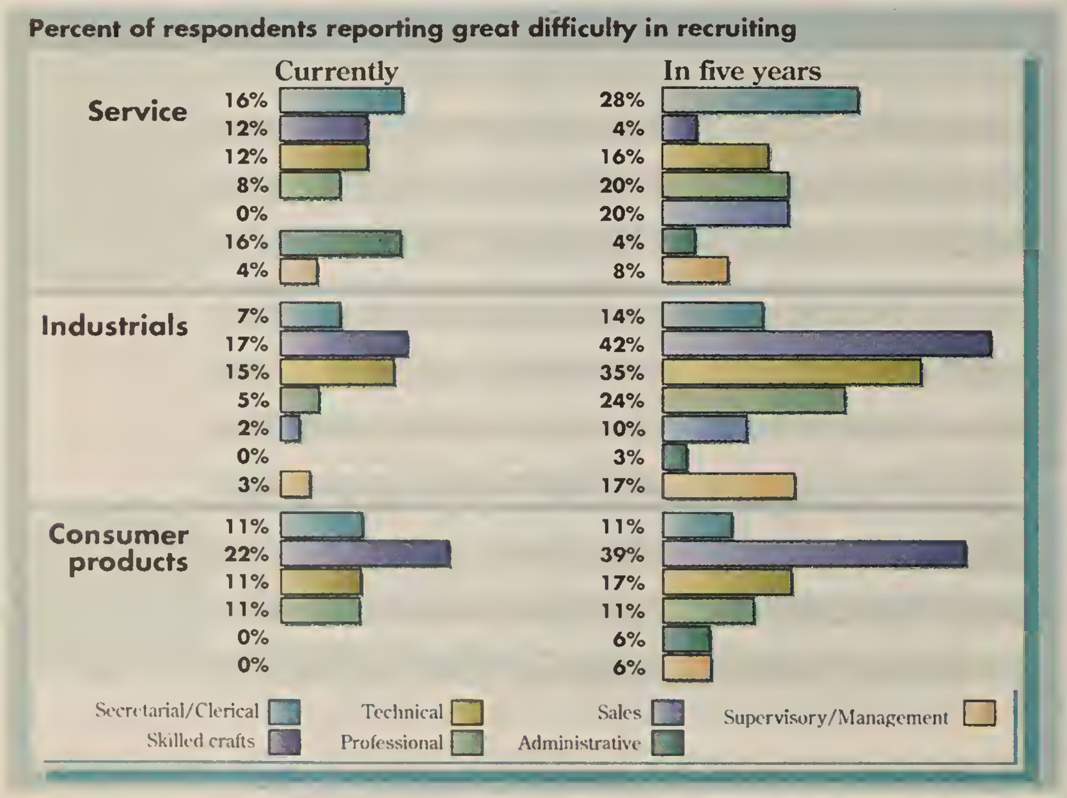
Even though PALS was relatively easy to install, Neder notes that the IS department was not involved initially with the system's procurement. She says that it would have been much easier had the group been involved.

"They unfortunately didn't have the resources at the time, so I became an expert in DASD [direct-access storage devices], communications, memory, etc.," she says. Now, however, because of the tremendous success of the program (10 times more employees use the system now than in early 1988), the lab has its own in-house IS support team on-call for problems or to consult on possible upgrades.

Roughly 300 employees have already gone through the program, but the job is a continuing one, Neder says, because the

In for a dry spell

Of these selected industry sectors, industrials may be hardest hit by labor shortages, according to a survey of human resources executives at the firms



Source: Towers Perrin and Hudson Institute, Inc. CW Chart: Michael Siggins paper continues to hire people with literacy problems for lower paying positions. Although its educational program does provide a community service, the motivation for hiring educationally disadvantaged isn't particularly altruistic, she says. "We have no choice. That is who is available for these types of jobs."

At Mellon Bank, one tool that is helping to ease the training burden associated with hiring less-skilled workers is a mainframe reference tool called Preference from Goal Systems International, Inc. Preference provides on-line applications assistance to users by linking various application systems to on-line text references written by Mellon. Currently, employees use Preference only for a reference manual. Next year, however, the bank plans to make fuller use of the product's Help feature, which provides single-keystroke access to text explanations of problems that may be encountered by data entry personnel working on various stages of applications.

Diversity in the makeup of the work force is another issue to be faced. We are already starting to see a shift from the traditional white male work force of the past, to a labor pool including more minorities and women, and that trend will accelerate during the next few years, according to Cunningham. "The clone factor in hiring" has perpetuated male dominance in the workplace, she says. Company founders are usually male, white and well educated, and they have tended to hire people like themselves. But now they can't do that as easily, because young applicants fitting that profile are becoming scarcer.

Travelers' Bacon *says increase of women employees led to telecommuting*

At Travelers, the shift that brought about a technology-enabled change in procedure was related to the rising proportion of women in the work force and the criticality of retaining valued female employees, says Larry Bacon, vice-president of data processing. "Keeping outstanding people is vital to us," he adds.

From 1985 to 1990, the number of professional women hired at Travelers increased by 83.2%, according to a company spokeswoman. Furthermore, a number of female employees who had been with the firm for 10 years decided during that time frame to have children and expressed a strong desire to stay at home with them. Faced with the prospect of losing these employees and other recently hired women as they reached the same crossroads, Travelers decided that telecommuting was its best option.

Started in 1987 as a pilot program for women only in data processing, telecommuting is now also offered to employees in the national claims processing group, research personnel in human resources and personnel in insurance operations. "We started with 10 participants," says Bengston, a telecommuter herself, "and now we have close to 100 employees involved either part-time or full-time."

The system itself consists of IBM MVS host mainframes linked with IBM Personal Computer ATs through Systems Network Architecture-based communications. According to Bengston, the system was easy to implement because the technology was already in place for linking field offices to Travelers' headquarters. "We just hooked up a dedicated packet-access line right into my home, and now I can enter any system from home that I could have from work," she says.

There has also been a financial advantage to the company, Bengston says, in that the $4,000 or so that it costs to equip its telecommuters with home workstations is more than offset by savings on office space.

Serve-yourself benefits

Accommodating the needs and values of an increasingly diverse employee population is also pushing companies inexorably in the direction of more flexible benefit plans and benefit systems.

"Systems that traditionally supported human resources were geared to a more definite, set group of people," notes Judy Dunnington, manager of implementation services at Hunter Group, Inc., a Baltimore consulting firm. Now, companies must take a broader view to attract and keep the best talent and offer flexible or "cafeteria-style" benefits. In such a scenario, the employee, based on certain requirements, is able to select benefits best suited to his situation.

Flexibility is not a word that applies only to benefits systems, however. It will have to be the prevailing feature in all systems efforts relating to employees during the next few years, Dunnington says. Labor force variations are very fluid, and because the changes are ongoing, IS will be stepping into very nebulous territory.

"The user will say, 'I know what I need today, but I'm not sure what I'll need tomorrow, and I'll need all of it by yesterday," Dunnington quips. •

Datacomm Commentary

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"A graphical interface is clearly important… users love 'em. But the architecture has to be designed to handle it or the performance compromise is unacceptable."

"I'd like to see more discipline from software developers. Commands should be consistent for every application… it would eliminate the cost of constantly retraining."

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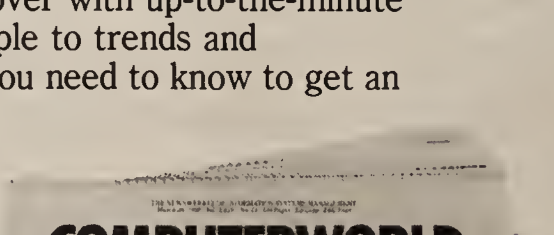

The Newsweekly of Information Systems Management

INTERVIEW

Shifting currents in the labor pool

Towers Perrin's Kanin-Lovers outlines ways that firms can take advantage of technology to address work-force changes

The future may have arrived somewhat ahead of schedule, at least in terms of work-force trends. A recent survey of 645 companies conducted by management consulting firm Towers Perrin in conjunction with the Hudson Institute, Inc. reveals that many U.S. corporations are already feeling the sting of demographic and value shifts in the U.S. labor pool that were originally predicted as long-term trends by the institute's 1987 report, "Workforce 2000." Jill Kanin-Lovers, vice-president at Towers Perrin and chair of the firm's internal task force on "Workforce 2000," recently spoke with Computerworld *researcher Kim Nash about how some of the companies surveyed are responding to this situation (see charts page 64) and about how technology may be able to help all companies address these concerns.*

What are the major work-force changes that companies are currently encountering?

We've identified six categories. The first is labor shortage, which some parts of the country are feeling more than others.

The second is cultural diversity. The increasing number of minorities and immigrants in the workplace challenges old management styles. Managers now have to learn to supervise and motivate people who have different value systems.

A third category is the increase of women in the work force. While issues concerning work vs. family are not strictly "women's" issues, women tend to be more vocal about them.

Another shift we found is in worker values. Today's educated employees want more independence and flexibility. They are not always as interested in compensation as in quality of life.

The aging of the work force is also an issue. Surprisingly, this is one area companies are not as concerned about. It seems to me that if you have a shortage of skilled workers, one resource you could tap would be the people whom you would have normally encouraged to retire.

Are companies doing that yet?

Not yet. Some companies, though, are experimenting with retiree job banks, from which they can bring retirees back for special assignments.

And there is one more category?

Yes. Skills mismatch or skills shortage. This is another problem that's being felt differently in different industries and parts of the country. Nevertheless, the majority of companies that responded to our survey said they have a tremendous need for more technical employees and that it will get worse over the next five years.

How are companies dealing with the growing demand for technical workers?

Some are taking the traditional approach of raising entry-level salaries. That may work for a while, but they are going to have to think through a broader strategy for the long term.

Some organizations form partnerships with educational institutions so that they can position themselves as preferred employers and help to structure the curricula. Others are looking at ways to restructure work so that a skilled worker can focus on the more technical part of a job and assign the mundane tasks to someone else.

Some companies also now offer more job-scheduling flexibility, including work-at-home arrangements and compressed work weeks.

How many companies would you say are actually doing these sorts of things?

We were surprised to find that a significant number of organizations are doing what we would view as very innovative things. Quite a few are looking at more flexible job structures. An increasing number are partnering with educational institutions at both high shool and college levels.

We also found a group of companies that have implemented what I call Mommy Work Week programs, which are plans designed to lure housewives to work by offering flexible, school-hour work schedules.

Do you see any ways that computers and information systems can be used by companies to help them adjust to work-force changes?

It's technology that's changing the work world in the first place, and it's technology that will increase worker efficiency.

The introduction of technology for tasks that can more efficiently be done with a computer is going to be a really important part of job redesign and staying competitive.

If you can't get the labor, and if you're going to have to make better use of the workers you already have, you've got to get the job done as efficiently as you can.

Kanin-Lovers *notes that educated employees want more independence and flexibility*

Can you think of any instances in which this is already happening?

I know of a fast-food chain that uses pictures instead of words on their point-of-sale terminals. They have pictures of hamburgers and the like, so the cashier doesn't have to know how to read. This is an example of designing a technological support system to make a less-skilled work force more productive.

How much do changing employee values play into the job redesign you mentioned earlier?

Right now, we have three different value systems in the workplace. One is a group that we call the Radio Babies, who are currently our senior managers. These are older workers who have a very strong work ethic, tend to have more loyalty to the corporation and are used to more hierarchical styles of management.

The second group, TV Babies, is not as comfortable with that commanding, controlling management style. They had more choices when they were growing up and are now looking for more teamwork at work.

The last group is called the Computer Babies. These are people who are used to — and demand — a lot more variety, flexibility and choices. They are not necessarily looking for the challenge of climbing up the corporate ladder as much as they are looking for the challenging project.

Your report mentions that about 50% of the companies surveyed have increased their use of technology and automation. How does this increase relate to changing labor demographics?

In the past, companies were assured of plenty of labor. They could get people who had the right skills and didn't have to worry about each individual as a special asset. When you see the skills shortages happening now, you have to think of different ways to get the work done.

If the best way to make use of employees is to invest in more appropriate technological support or to automate some tasks, that's what managers will do.

Do you expect, then, that increasing technology and automation will be a major trend as the work-force changes become more pronounced?

If companies are going to stay competitive, they have no choice. They've got to look for ways to do the work better with less labor and for ways to take advantage of the limited labor supply that is available.

Flat management requires juggling

BY SUZANNE WEIXEL

Not all work-force changes fall into the act of God category. Some are the result of corporate decisions. Perhaps the most prevalent current example is the trend toward flattened organizational structures, which require fewer managers to spread themselves across more territory and more employees.

In many cases, the remaining managers are being asked to make almost superhuman stretches. At Federal-Mogul Corp., for instance, a decision to eliminate several management layers meant that Bob Muylaert, information services account executive for sales and marketing at the vehicle parts supplier in Southfield, Mich., saw his direct reports increase from two to 17 in one month.

With the proper use of management techniques and technology, however, Muylaert says that having more than eight times the number of direct reports does not mean having eight times the work load.

At Federal-Mogul, the flattening meant shifting from a hierarchical, function-oriented way of doing business to a more involved, integrated cross-functional approach. For Muylaert, this translated into developing a wider span of knowledge and learning how to communicate more effectively. "You have to be a powerful communicator to survive in this situation," he says.

Marriott's L'Esperance *uses technology such as E-mail to keep employees informed*

In addition to personal skills, Muylaert says he has come to depend on electronic mail and voice mail to boost his communications range and is investigating project management software to help him juggle his various activities.

Making flatter even better

At Marriott Corp., Charles L'Esperance, senior vice-president of hotel information systems, can rattle off an even longer list of significant technologies used to keep senior management in contact with the frontline customer service staff now that the layers of intermediate management are gone. Along with E-mail and voice mail, portable laptop computers and project tracking groupware have also become staples of the management process since the organization decided that flatter was better.

"Whenever there is a senior management meeting, we broadcast the major points to all the associates [employees], via voice mail," L'Esperance says. "Even when I'm traveling, I have a laptop for accessing E-mail and a telephone for linking to voice mail."

Marriott also recently installed a videoconferencing system. It serves mainly as a training tool, but senior managers also use it for employee communications when they want to make announcements.

On the flipside, however, to keep management informed about what the staff is doing, each Marriott hotel submits a weekly sales report that includes key statistics. Departments use E-mail or voice mail to submit daily reports. In addition, managers and employees use personal computer tools such as Lotus Development Corp.'s Agenda for keeping lists of things to do and organizing meetings.

Before the advent of such communications systems, conventional wisdom limited to five the number of staff members that one person could manage directly, says Kay Redditt, president of Cognitech Services, Inc., a consulting firm based in Easton, Conn. "Basically, the systems enable a manager to reduce the amount of time he or she devotes to each individual report," she explains.

Such systems can also help to change both the nature and the ownership of work, which, says Daryl Conner, an Atlanta management consultant, is essential for successful restructuring. "Surgically removing layers of management and redistributing the same work and the same work habits to different employees is not going to cure anything," he adds.

Perhaps the hardest habit for the remaining managers to break is that of

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Weixel is a free-lance writer based in Framingham, Mass.

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trying to supervise the details of work processes, says Madeline Weiss, president of Weiss Associates, Inc., a consulting firm based in Bethesda, Md. Instead of concentrating on exactly how each job is done, managers have to learn to manage with a focus on results such as quality improvement.

In order for that shift of responsibility to occur, Weiss explains, frontline employees must be given enough information to make decisions that are in line with corporate strategy.

An ideal information management system for use in a flattened organization is a combination of electronic messaging, automated project management, document management, a meeting and resource scheduler and a database, according to Michael Howard, president of Infonetics Research Institute, Inc. Howard calls this approach work-flow management, because it not only organizes different applications for many users but also ties different applications together and manages different processes.

Marriott uses a package called Coordinator, a PC-based E-mail and project tracking system from Action Technologies, Inc. The program handles correspondence among project teams and performs commitment tracking, which entails monitoring project requirements such as staff, hours and other resources.

Access to this type of data is valuable, for example, when working on opening a new hotel. If 12 people are working on the project, L'Esperance explains, a 13th person can come in, access Coordinator and receive all correspondence and data relating to that opening in chronological order. "The good news is that everyone knows what he's talking about instead of just taking a message and passing the buck," he adds.

Post it

Making performance data available is a technique also used by Corning, Inc. in Corning, N.Y., which within the last two years has dropped the number of management layers in its computer operations department from five to three.

Corning wrote a software program in-house to monitor the performance of the operating staff, and the results are made available to all employees, says Harvey Shrednick, vice-president of information services. Figures for costs, tape errors, system availability and operator errors are posted on a bulletin board outside the computer room each month.

According to Shrednick, in the two years since cutting down management layers, operator errors have dropped significantly — falling to zero during April, May and June of this year. "We share responsibility, and we share success. It's a win-win situation," he says.

Federal-Mogul's Muylaert *believes in the power of communication for flattened organizations*

Muylaert found that giving his staff access to all the data he uses, including capital plans and profit plans, helps keep them motivated and informed. Staff members help compile the data by contributing their own knowledge, on-line via E-mail or in hard copy. The final data is loaded into a spreadsheet, printed out and distributed in a "briefing book" that is used throughout the year to keep track of expenditures and the like.

Employees are privy to everything except personal salary data, and they have adopted a team approach to solving problems and brainstorming for ideas. As a result, Muylaert says, they have grown tremendously. "They take more risks, they are more comfortable making decisions and can make decisions faster." •

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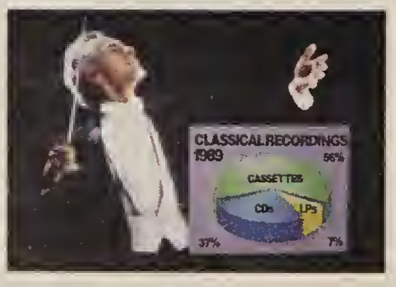

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Lack in the USSR

A firsthand account of how ambitious Soviet computerization plans face shortages of computers, security know-how and savvy managers

BY SANFORD SHERIZEN

Editor's note: Earlier this year, 47 U.S. computer and quality experts toured the Soviet Union as part of a "Citizen Ambassador Program" organized by People to People, a Spokane, Wash., group that unites specialists with their counterparts from other countries. Among them was Sanford Sherizen, a noted security consultant who was sponsored by the College of Criminal Justice at Northeastern University. The following is his report:

Imagine a bank that has 200 million customers with 80,000 branches in 15 republics across the nation. Then consider that you are in charge of replacing traditional savings account passbooks with debit cards. Finally, think about the security that would be required throughout every phase of the changeover.

This type of challenge was on my mind when I landed in Moscow at the start of a professional trip through the USSR in May. I was prepared for an enormously complicated land in the midst of rapid change. Little did I know how unprepared I was for what I saw.

I had applied for this trip in order to find out how the USSR was making certain decisions at this historically important time. As a criminologist and information security consultant, I wanted to examine how the Soviets are making some very critical and intriguing decisions regarding the following computer-related issues:

- How is the USSR going to balance increased information flows essential to *perestroika* with its traditional restrictions over information?
- How are the Soviets going to achieve widespread computerization while deciding on what to do with such inevitable byproducts as hacking, free information flow, changing work patterns, challenges to traditional management controls, etc.?
- What are the ways in which security is shifting from KGB-type state security to other forms of private information security?

Raising good questions was easy. Getting answers proved much harder.

A computer tour of the USSR

In Moscow, Leningrad and Minsk, at universities, banks, computer organizations and with entrepreneurs, our Soviet hosts were very friendly, treating us as honored guests who were interested in sharing information. Many of the Soviets were technically savvy and very interested in obtaining computers for their organizations.

We met some technically sophisticated people who were aware of the latest computer issues in the U.S. They often knew quite a bit about U.S. computer systems and were able to discuss specialized application features. One even pulled out the latest copy of the software magazine *Dr. Dobb's Journal* from his briefcase to make a technical point.

However, the majority of these Soviets work with very old systems that are being used extensively to support major organizations. Many share large work loads on the few available computers with a number of other people. Where we saw personal computers (including equipment from the U.S., Asia and Europe as well as Soviet-made machines), too few of them are available to meet the needs of the organization. Of course, we did not go to military or specialized facilities where some of the more advanced computers are used.

Reminders of inadequate computerization are everywhere. Many stores and offices are still using an abacus, or at best, a calculator. Point-of-sale terminals, spreadsheets and cash management systems are still a long way off. By one Soviet estimate, U.S. machines this year will make roughly 50 billion more computer calculations per day than Soviet machines.

The lack of modern computers is not surprising; computerization in the USSR has a history of political restrictions. During the 1940s and 1950s, Soviet leader Joseph Stalin forbade the study of cybernetics, electronics and computer technology, because they were considered "bourgeois" sciences. The result was that computer activities were almost nil, except for some military applications.

Yet *perestroika* may require computers in order to succeed. Information technology in the period from 1986 to 1990 was to be the key to Soviet leader Mikhail Gorbachev's plan for renewing and restructuring the country's economy. In his address to the 27th

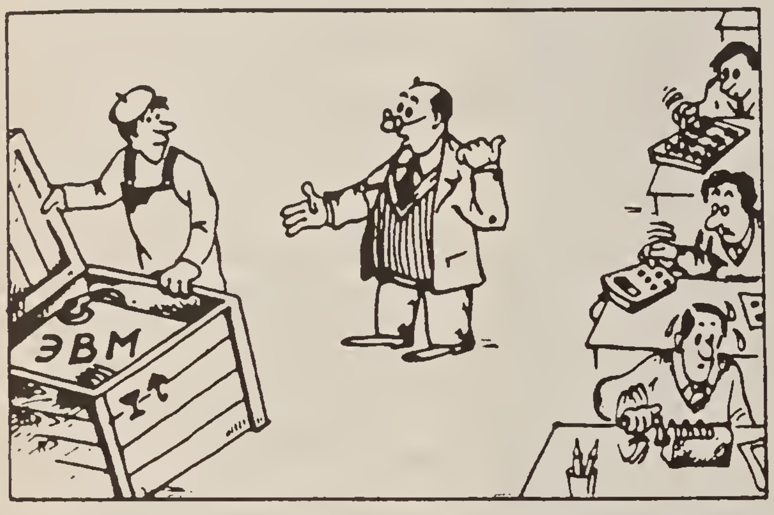
Russell O. Jones

- **Broad cultural change needed**
- **For many, calculators are high-tech**
- **'There is a time when one must start'**

Sherizen is president of Data Security Systems, Inc. in Natick, Mass., and a criminologist and expert on computer crime prevention.

Party Congress, Gorbachev detailed the following elements of his plan: Double the telephone system by the early 1990s, complete a national computer network, introduce computers and databases at all levels of the national economy, train a new generation of Soviet citizens as computer-literates and reorganize the USSR Academy of Sciences to correct the nation's computer backwardness.

My suspicion is that few, if any, of these goals will be accomplished soon. Even basic support services necessary for computers, such as safe and reliable electricity, are lacking.



Ekonomicheskaya Gazeta

What do we need new technology for when the old technology is still working?

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Nikolai Gorshkov, the first head of the State Committee on Computer Technology, said in a 1986 interview with *Pravda* that energetic steps were needed to bring order to the burgeoning Soviet computer industry. Gorshkov said the majority of computer programs drafted in the past decade had not been up to the standards needed for mass use, and lack of coordination hampered efficiency. He added that government inspection of computer quality would be set up under his committee.

Unfortunately, few Soviets indicate an awareness of what computerization has *not* accomplished in the West. Very little consideration appears to have been given to such issues as employment changes, computer crimes, shifts in the nature of property, legal definitions of computer technology and an organizational infrastructure to support computerization.

The current Soviet image seems to be that computerization will quickly make the Soviet system more rational and effective. One official, in describing how he was trying to restructure his bank to fit with *perestroika*, said that the U.S. had developed some 80 to 90 years ago what he was trying to do now: "Today, we are trying to invent a bicycle when we really need a space vehicle. There is a time when one must start. So we begin."

Roadblocks

Besides a lack of computer products and an infant industry, other problems are also slowing the growth of computing in the Soviet Union.

Managerial resistance. Notable obstacles are the many "potential enemies" of computerization — people who have a stake in resisting free information flow. Their large ranks include managers who have survived in their positions by learning how to manage shrinkage so that they can trade with other managers for needed goods. These managers understand that objective computers can cause them problems.

Similarly, government and party officials understand that computers can end their monopoly on information distribution and cause them serious headaches by objectively counting units. The skills that have allowed these managers and officials to hold on to their offices will be used as necessary to combat computerization.

However, the ability to manipulate computers may be an incentive for these individuals to support computers. Once these potential enemies find out about computer manipulations to change objective audits of their work, they may become the best friends of computerization.

Poor communication. Another obstacle to computerization is the lack of communication among organizations. The centralization of economic planning, the problems in telecommunications and the hierarchical division of labor make it difficult for managers to support computers. This in turn will undercut the control that managers have over their own jobs as well as their employees.

This lack of coordination among organizations and even departments within one organization has also caused problems in the manufacturing of computer equipment and software. Imagine how difficult it would be to develop a computer system without being able to be informed about the full scope of the organization and the nature of the information that is to be processed.

Widespread emigration. Compared with just a few years ago, many more programmers and other computer experts are now talking about wishing to emigrate. A Soviet who recently came to the U.S. told me that many of his technical friends have given up on the USSR and want to leave. Indeed, a significant portion of the Soviet Jewish emigrants are computer experts who are fleeing from open anti-Semitism both in the workplace and on the street. Some non-Jewish Soviets are seeking joint ventures that will allow them to "visit" the West. The loss of some very talented people will restrict the ability of Soviet society to advance with computerization.

It is clear in the Soviet Union today that, while there is an absolute need for computerization to make the market economy function, computerization will not work within an abacus-based society without major changes. Without carefully considered legal and industrial supports, computers will become expensive paperweights. Whether the less tangible supports that lay the foundation for computers, such as copyright protections, privacy and even basic communications connections, will be achieved is still an open question. •

Talk with Soviet users

Network connections to and from the USSR are few but growing all the time. Some of the choices include a bulletin board that provides electronic mail and teleconferencing with Soviet computer users called the San Francisco/Moscow Teleport located at 3278 Sacramento St., San Francisco, Calif. 94115 (415) 931-8500. Another connection is through Peacenet via Jeff Sears, (415) 923-0900.

A Russian text processing mailing list, called Rustex-L, is also available. It is administered by Dimitri Vulis, Department of Mathematics, City University of New York Graduate Center, who can be contacted at DLV%CUNYVMS-1.BITNET@cunyvm.cuny.edu.

An excellent overview of Soviet technological growth is provided in a book entitled *Chip in the Curtain: Computer Technology in the Soviet Union* by David A. Wellman, Washington, D.C., National Defense University Press, 1989. (202) 475-0948.

Bozhe Moy! Hackers and viruses already plague Soviets

There have already been computer crimes and virus attacks in the USSR. Over the last several years, the number of incidents has appeared to increase along with other forms of crime.

One of the earliest cases of a computer virus in the USSR occurred in 1988 when an unidentified programmer at the Gorky Automobile Works on the Volga River was charged with deliberately using a virus to shut down an assembly line in a dispute over work conditions. The man was convicted under Article 206, the so-called hooliganism law, which provides for a jail term of up to six years for "violating public order in a coarse manner and expressing a clear disrespect toward society."

The comments about viruses heard at a number of meetings are worth reporting: "We are ready to meet the problem." (Moscow State University); "Viruses come from international exchanges but some day soon come from here." (National Academy of Economics); "The USSR recently joined Interpol. A requirement of that organization is that member states' police departments must ensure data security. The result has been that the police management has now become sensitized to that issue." (National Academy of Economics); "On the physical side [of security], we close what needs to be closed. Some say that only a sentry will be sufficient." (A Soviet bank security official); "How have we responded to viruses? Up until now we suffer." (Institute for Informatics Problems in the Information Sciences Department of the Academy of Sciences of the USSR).

According to various Westerners, pirated software is all over the USSR, and the Soviets often get hit with viruses when they buy these "forbidden fruits" via the Hong Kong or Swiss connections. A number of the 70 known Bulgarian viruses also appear to be prevalent, along with two Soviet strains: Victor and a variant of the Vienna virus.

According to Aryeh Goretsky at McAffee Associates, a computer security firm, other viruses that have been confirmed by Soviet and Eastern European antiviral programmers include the following: Yankee Doodle, Vacsina, Microsoft88 (534), Sunday, Amstrad or Pixel, Disk Killer 170X, Stoned, Ping Pong, Vienna, Jerusalem, Friday the 13th COM, Pakistani Brain, Disk Killer and W-13.

Programs available to combat viruses are Aidstest by Lozynky and Anti-Kot and Anti-Kor by Kotik. Some Western antivirus programs and some homegrown versions were also found at various Soviet sites.

It is noteworthy that viruses are increasing, even though a form of data security exists in the Soviet Union. This security is of the most basic type: It is largely composed of guards and locked doors restricting access to computer rooms.

Other simple measures are used, such as limiting links between computers and systems and access controls to files. These measures are far from adequate, however, given the pressure to acquire and distribute microcomputers and to establish networks.

What makes the situation worse is the lack of trained data security personnel, data security standards and tools, data security supports and, in some instances (but not in others), lack of knowledge of security techniques beyond basic approaches.

Sadly, it appears certain that there will be an onslaught of computer crimes and virus attacks in the near future. If (and when) *perestroika* can lead to computer linkages of even a minimal sort, the types of crime and abuse problems that have become part of life in the West will be found in the USSR.

A mixture of homegrown hackers, outsiders and even some business managers will create what could be a very fearful situation for the Soviet authorities. How they will respond to this challenge is, to a large degree, based on what authority will be functioning in the near future.

Decisions about what information to protect and how to do it are not being developed in the USSR today. Unfortunately, it appears that these decisions will be put off there as they were in the U.S. for too long.

Soviet computerists, both in state enterprises and the fledgling private sector, can learn about information security from U.S. experiences. The main issue is to try to be like us while avoiding the many problems (including security problems) that we developed in association with computerization.

SANFORD SHERIZEN

NATIONAL
BRIEFS

Peach and Apple pie?

Norcross, Ga.-based **Peachtree Software, Inc.**, a privately held purveyor of accounting software to the IBM Personal Computer and compatible market, bought itself a big slice of a new market with its recent acquisition of **Layered, Inc.**, a leading developer of accounting products for the Apple Computer, Inc. Macintosh. The deal, terms of which were not disclosed, will land Layered's Boston-based operations in Norcross as a Peachtree division headed by current Layered President Bill Savoy.

■

One more reason

Aiming at complementing the strength of its current wide-area network applications, Columbus, Ohio-based **Compuserve, Inc.** has acquired **Microsolutions, Inc.**, a local-area network products reseller based in Dallas. In what is becoming the traditional takeover style for Compuserve and parent **H&R Block, Inc.**, Microsolutions' 85 employees will all be retained, and the company will continue to be headed by President Mark Cuban and Chief Executive Officer Martin Woodall. Financial terms were not disclosed.

More briefs on page 75

Easing the pain when jobs are lost

When cuts must be made, some firms are giving employees more than just a pink slip

BY SALLY CUSACK
CW STAFF

Layoffs, mergers and attrition — these words strike fear in the hearts of many, from the lowly chambers of clerical administration to the lofty corridors of the corporate elite. In these times, no one is sacred.

During the recent spate of computer industry restructurings and upheavals, what — if anything — are the major players doing to ease the painful transition process for their employees?

In many cases, companies are reaching outside their organization for help, usually in the form of an outplacement service firm. When The Dun & Bradstreet Co. purchased Management Science America, Inc. last year, aggressive restructuring plans merged MSA's Atlanta-based operations with D&B's Natick, Mass.-based McCormack and Dodge group to create a new entity — Dun and Bradstreet Software. The move forced a 380-person reduction in the combined work force, and D&B sought outside help in the form of Drake Beam Morin, Inc., an international outplacement services organization in New York.

"We chose Drake Beam Morin primarily because of their international scope," said Ron McKenzie, director of human resources at D&B Software. "Though most of our work force reduction was concentrated in the Atlanta and Boston areas, it affected staff worldwide. We needed a company that had branch offices almost everywhere and that could help our employees relocate within their own area whenever possible."

Drake Beam provided D&B Software with two different programs: one offering individualized counseling services for senior management personnel and the other providing seminars for the general staff, designed to explain the transition process and explore alternate career paths. At the upper-management level, Drake Beam also provided counseling services to employees' spouses and offered a program by which a relocated executive, if not happy with his or her new position within six months, could return to the counselor for alternative placement.

Deep cuts

Prior to its purchase by Computer Associates International, Inc., Westwood, Mass.-based Cullinet Software, Inc. went through several waves of work force reductions in a futile attempt to turn company finances around. During the downsizing maneuvers, Cullinet contracted with Hurst Associates in Boston for assistance.

In addition to providing employee counseling, outplacement seminars, a career resource center and vocational testing, Hurst instructed managers on appropriate ways to conduct termination interviews — by focusing on the concerns of the departing employee in a professional and humane manner.

"Many managers inadvertently take a quick, clumsy, let's-get-it-over-with approach," said George J. Stiles, president of the Career Re-Directions division at Hurst. "They have to remember that the employee is in a tremendous state of shock, and they need to know what the next step is, and that includes providing information on income, severance and outplacement assistance."

Some companies have met with success by creating employee services organizations in-house. When Apple Computer, Inc. laid off approximately 400 employees in January, the vendor set up a transition center near its Cupertino, Calif., headquarters.

"The bottom half of the building was devoted to 60 or so offices with telephones, personal computers and support equipment for resume writing," said Ylonda Davis, an Apple spokeswoman. "We also had a job-posting room, and we created a data-

Continued on page 77

The outplacement market at a glance

Frequent, and often massive, work-force reductions in other industries are making the once-miniscule outplacement sector into a boomtown

- Outplacement services market currently valued at approximately $460 million more than twice the size of the estimated market a year ago
- Some 225 firms currently make up the market, compared with approximately 100 in 1984 and an estimated 40 in 1980
- The standard fee charged by reputable outplacement firms is 15% of a departing employee's salary; for group outplacement services, a firm will negotiate rates with the customer company, tailored to the circumstances prevailing and the services provided

CW Chart: Paul Mock

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EXECUTIVE CORNER

Goldberg takes Image Business Systems helm

Former Adapso Chairman **Jay N. Goldberg** is the new president and chief executive officer of New York-based software vendor **Image Business Systems Corp.** A 29-year industry veteran who started his career with IBM and spent nearly two decades at the head of a professional services firm he founded, Goldberg most recently served as chairman and CEO of Money Management Systems. Image Business Systems is privately owned by its employees and a group of investors, including IBM.

Eastman Kodak Co. appointed **Dennis M. Peck** CEO of its Santa Monica, Calif.-based subsidiary, **Interactive Systems Corp.**, purveyor of Unix-based products and services to OEMs and resellers. Peck, who has spent the past two years as an independent marketing and management consultant, is former chairman and CEO of workstation vendor Saber Technology Corp.

Former **Xerox Corp.** executive **Arthur Lipton** has signed on as the head of **Wyse Technology**'s flagship terminal business, replacing acting head Paul McIntire. As senior vice-president and general manager, Lipton — a 19-year Xerox veteran who spent the past decade in operating group executive positions — will report to Wyse President Daniel Wu.

Hewlett-Packard Co. has named **Jacques A. Clay** as general manager of HP's Personal Computer Group, replacing Robert L. Puette, who is now president of Apple Computer, Inc.'s Apple USA. Clay previously was general manager of the company's Grenoble, France, Personal Computer Division. HP also said it will relocate the Personal Computer Group's headquarters to Grenoble.

Global digital network on tap

BY KEITH NEWMAN
IDG NEWS SERVICE

AUCKLAND, New Zealand — A self-managing, self-healing, intelligent digital network is being developed to meet the growing demands of global businesses.

AT&T, in association with other major telecommunications companies, is spearheading the system and has invested more than $8.85 billion during the past three years to accelerate digitization of the network. All of the traffic on its domestic switched network will be digital this year.

This worldwide intelligent network incorporates electronic switching systems that permit the network to heal itself. Half the technical professionals at AT&T Bell Laboratories are developing software to ensure it will meet quality, speed, diversity and reliability demands, according to the company.

The demand for software-defined networks is an example of user appetite for more control, said AT&T New Zealand communications managing director Don Congdon, and AT&T is already branching out from its dedicated multinational networks to integrated virtual networks to meet this need.

He cited General Electric Co.'s worldwide private network as offering a glimpse of future: "That network will carry voice, images and video to link 1,400 offices in 25 countries on six continents."

Global corporations want a consistent set of interfaces so that their employees do not have to learn a new system every time they move from country to country as well as in order to offer a consistent, high-level service at competitive prices without dealing with multiple telephone companies, Congdon said.

"Advanced communications technology has made it possible for any company to market products and services anywhere. As private networks have become more complex, net management functions have become a costly nightmare for many users," he said.

According to Congdon, different carriers are at different stages of development. "Telecom New Zealand has been at the forefront of these trends and in many ways has become the model for others to follow," he said.

Telecom New Zealand's move from a Postal Telephone and Telegraph authority to a private corporation is being looked at with "keen interest" in Australia, Singapore, South Korea and other places outside the Pacific, Congdon said. "Major telephone companies of the Pacific recognize they must work cooperatively to overcome standards issues, diverse interests and difficulties in coordination."

The Integrated Services Digital Network (ISDN), for example, has gone from an exotic concept to a reality and will be available from 343 U.S. locations on the AT&T network by the end of the year.

"Earlier this year, Japan's KDD and NTT linked with AT&T to connect New York, Tokyo and [Osaka, Japan] in the first demonstration of commercially available international ISDN applications. The U.S. also has links with the UK and France," Congdon said.

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Jobs

CONTINUED FROM PAGE 75

base of available positions based on calls we received from outside companies." Davis said she handled between 30 and 40 inquiries from interested hardware and software companies within three days of Apple's announcement.

Control Data Corp. also marches to the beat of the "do-it-yourself" drum. In recent years, the Minneapolis-based corporation has sold off several of its major divisions, resulting in a sizable work force reduction: The company went from 33,500 employees in 1988 to 18,000 employees by the end of 1989.

For those facing involuntary layoffs, CDC provided a host of in-house transition services. These were available to all displaced, full-time employees at all levels and included a three-day job search seminar, one-on-one assistance from a job coach, retraining or skills upgrading information and employment opportunity data from more than 1,000 firms. According to CDC, 80% of the individuals affected in the Twin Cities area who participated in the program found new jobs.

Eighty percent seems to be the going rate. George Stiles reported that 80% of Cullinet's employees found positions within 60 days of the layoff. But what of the remaining 20%? "Nothing's perfect in these situations. You try to do the best you can," McKenzie said.

A company's best is not always enough. "Other than attending a one-day seminar provided by Drake Beam, I was very much on my own," said a former McCormack & Dodge employee who requested anonymity. "The company was caught off-guard, and D&B's own personal company support was lacking. The support was not in place when the merger took place [see story below], and there was very little intercompany communication with reference to job availability, etc., after that." Nevertheless, many company representatives said, as work force reduction becomes a fact of life in the business community, outplacement services with all their imperfections are a quantum improvement over the alternative. "The question we asked ourselves when putting these programs together was, what would I do in this instance?" McKenzie said. "We try to take the human approach."

> "MANY MANAGERS inadvertently take a quick, clumsy, let's-get-it-over-with approach. They have to remember that the employee is in a tremendous state of shock, and they need to know what the next step is."
>
> GEORGE J. STILES
> HURST ASSOCIATES

Soften the blow

When a work force reduction appears inevitable, is there anything a company can do in advance to mitigate the damage to employees — both outgoing and remaining — and customers, who all too often feel the fallout of any severe corporate disruption?

Plenty, according to George Stiles, president of the Career ReDirections division at Boston-based Hurst Associates.

- Get top management involved with the outplacement consultants early in the game.
- Before the event, train all managers and supervisors in "the most dignified, compassionate, professional way to handle this difficult event." In a two- to three-hour workshop, he said, managers and supervisors can be clued in to the possible impact of the work force reduction on various segments of the corporate population and schooled in the most appropriate and helpful responses to situations that might arise.
- Train managers and supervisors on the nature and scope of all outplacement services that will be available to affected employees. Stiles advises doing this as close to the actual announcement as possible, to minimize the time in which rumors — hence, anxiety — are likely to spread.
- On the day of the announcement, have outplacement consultants on the premises. "If affected employees get packets instead of people, the better chance is that they won't avail themselves of all of the services that have been put in place for them," Stiles said. In addition, he said, "they won't get to ventilate their feelings." The opportunity to do the latter, he added, is among the most valuable services provided.

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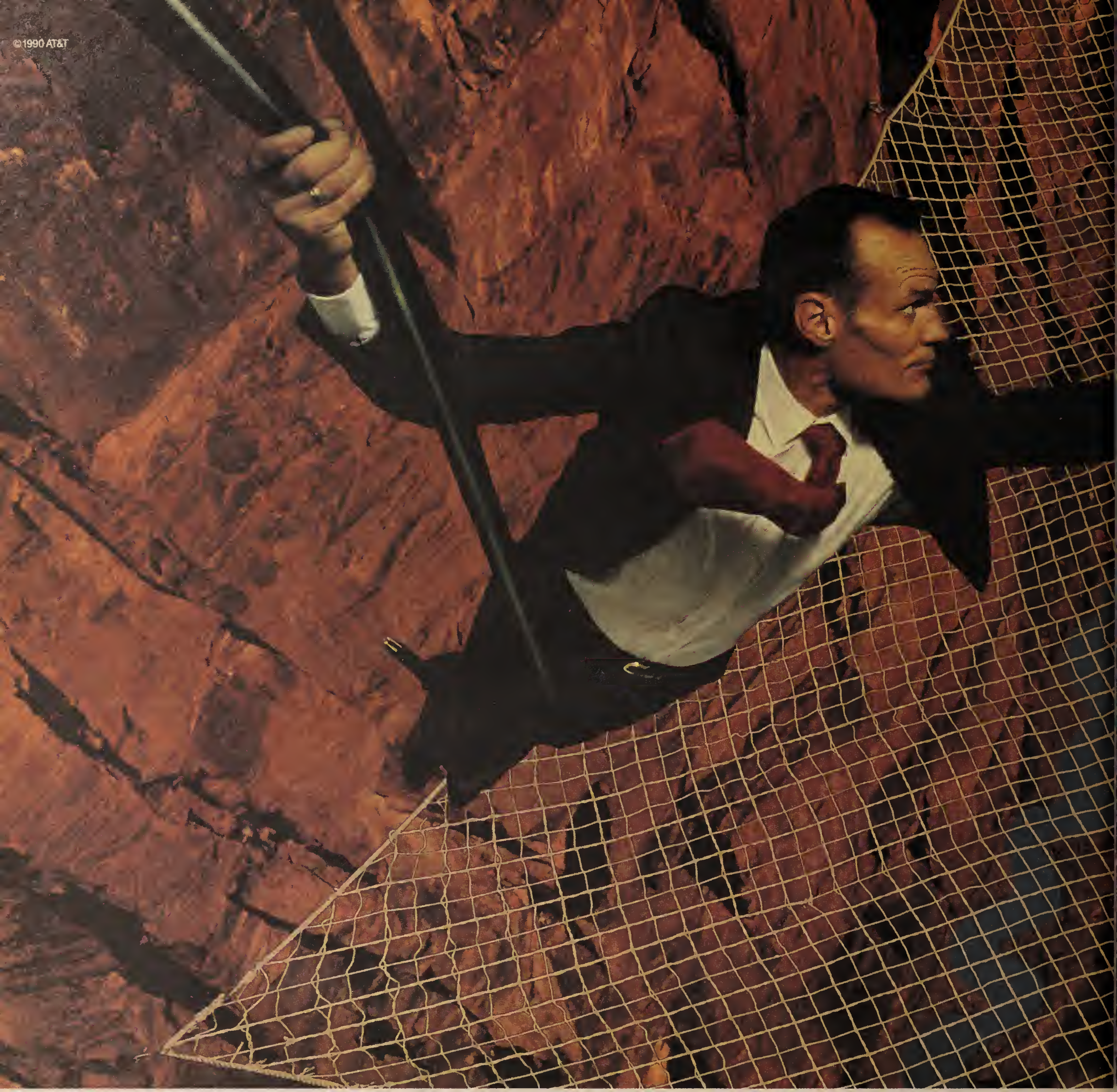

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Bull HN expands while parent firm plans cutbacks

BY SALLY CUSACK
CW STAFF

BILLERICA, Mass. — Dubbing the action a "further demonstration of its commitment to the United States market," Bull HN Information Systems, Inc. reached a preliminary agreement earlier this month to purchase Honeywell Federal Systems, Inc. (HFSI) from Honeywell, Inc.

Bull HN also confirmed last week that its French corporate parent, Groupe Bull, plans to reduce its work force by as many as 3,000 employees worldwide in the coming year.

David Dotlich, executive vice-president of corporate relations, said the majority of layoffs will occur in Europe. While the firm currently has no plans to reduce its stateside staff, Dotlich did not rule out that possibility as the company continues to downsize throughout the year.

Terms of the agreement with Honeywell were not disclosed, but a knowledgeable industry source pegged the purchase at just under $100 million. The pact is subject to final negotiation of definitive agreements and other approvals. Upon closing, McLean, Va.-based HFSI will be operated as a wholly owned subsidiary of Bull HN.

Marina Young, president of IDC Washington, Inc., said the acquisition gives Bull HN a toehold on the huge federal market for Unix-based systems and systems integration services and will likely lead it into the commercial arena as well. She also said Honeywell's expertise in secure hardware is needed in Bull HN's European markets.

HFSI currently provides systems integration, marketing, computer products and technical services to the U.S. government and prime contractors. The unit employs approximately 1,600 people and posted 1989 sales of $274 million.

Bull HN reported revenue of $2.1 billion in 1989. The firm has more than 17,000 employees, with 8,100 of them based in the U.S.

Bull HN said that with Honeywell, it is seeking all necessary U.S. government approvals for the transaction. HFSI will be operated under the terms of a proxy arrangement because of Bull HN's foreign ownership.

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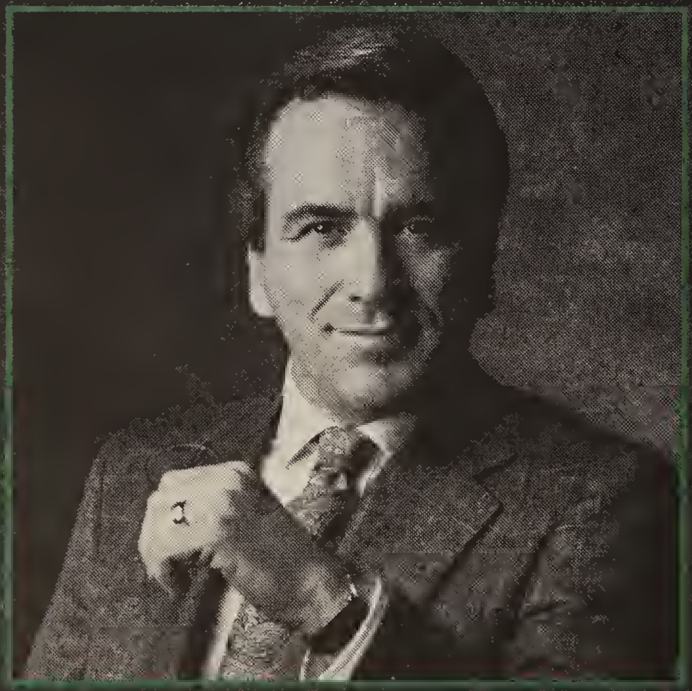

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NATIONAL BRIEFS

How big is it?

Anyone looking to pin a dollar value on the French computer hardware market had better prepare for frustration. Even experts differ — by billions. **International Data Corp. Europe** (IDC) estimated that French computer users will spend $17.4 billion on hardware and software this year. **The Diebold Group, Inc.**, however, pegged the figure at $22 billion. **IBM France**'s estimate was $26 billion. By how much is the market growing? According to IBM France, 14.6% annually between 1989 and 1993; according to IDC, by 12%.

■

The new Warsaw pact

Under an agreement signed earlier this month, **Poland** will be free to import U.S. high-technology products denied to its former Communist rulers. The way was paved by the June decision of the **Coordinating Committee for Multilateral Export Controls** to scrap the limits on U.S. exports to Poland, Czechoslovakia and Hungary, provided the countries agreed to allow on-site checks and not put Western equipment to military use.

A boost for advanced tech R&D

Commerce Dept. program will support industry-led projects

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Advanced Technology Program, launched last month by the U.S. Department of Commerce, may be the closest the Bush administration ever gets to an "industrial policy."

Mandated by Congress in the Omnibus Trade and Competitiveness Act of 1988, the program will provide financial aid to industry-led research and development projects. The start-up budget is $10 million, but Congress envisions a budget that would leap to $100 million in fiscal 1991.

In essence, the Advanced Technology Program allows U.S. businesses and joint ventures to compete for government grants for R&D projects. Industry proposals, due Sept. 24 for the current round, will be judged on whether they have technical merit and the potential to boost U.S. productivity and economic growth.

Undersecretary White

Adhering to administration policy, the program rules stressed that grants will be limited to R&D on "pre-competitive generic technologies," which are technologies (such as high-temperature superconductors) that are in an early stage of development and could be used for a broad range of products or processes.

The agency said the grants will help industry overcome "technical choke points" — that is, technical barriers currently holding up progress in high-risk technology fields. The program will help industry "through the laboratory prototype stage," but it will leave the development of commercial products to the private sector.

"This administration believes the federal government should avoid 'picking winners and losers' but instead should foster an industry-led strategy for competitiveness," the Commerce Department said.

The Advanced Technology Program — which has vigorous support among Democrats and Republicans in Congress — is the first high-profile program from the Commerce Department's new unit in charge of technology policy, the Technology Administration.

Judging from the program rules, the Technology Administration has the job of carefully steering a course between the administration's opposition to government subsidies for commercial technology and Congress' desire for a more activist technology policy.

Steering the Technology Administration is Robert M. White, a computer industry technologist who was nominated by President Bush to serve as the first undersecretary for technology. He was confirmed by the U.S. Senate in April.

White had been vice-president of Microelectronics and Computer Technology Corp., an industry consortium in Austin, Texas, where he directed the advanced computing technology program. Previously, he was chief technical officer at Control Data Corp. and principal scientist at Xerox Corp.'s Palo Alto Research Center.

White and congressional supporters say they hope the Advanced Technology Program grows to become the civilian equivalent of the Defense Advanced Research Projects Agency. The actual budget for the program will be determined by the ongoing negotiations to reduce the federal budget deficit and the resulting appropriations bills for fiscal 1991.

Rules of the game

The Commerce Department's new Advanced Technology Program provides grants for R&D projects on fledgling technologies with broad applications. The agency's Technology Administration recently issued the following rules for the program:

- Grants to individual firms are limited to $2 million over three years.
- Grants to joint ventures are limited either to cases where federal aid is needed to form a consortium quickly or in which an existing consortium plans to pursue a new area of R&D. The dollar amount is limited only by the budget, but the federal aid must be less than 50% of the venture's budget.
- No direct funding will be provided to universities or government organizations; they may, however, participate as members of a joint venture.

The scope of technologies covered by the program, administered by the National Institute of Standards and Technology (NIST) in Gaithersburg, Md., appears unlimited. The department had planned to restrict the program to technology areas in which the NIST has expertise, but that provision was dropped in the final rules. Application kits are available by calling (301) 975-5187.

MITCH BETTS

Eastern Bloc trade must clear financing hurdles

Despite liberalized export controls, Western firms see difficulties ahead in gaining market share

BY LOTHAR GRIES
and LINDA LEWIS
IDG NEWS SERVICE

PARIS — Not since the end of World War II has a political event aroused as much hope, even euphoria, in economic circles as did last winter's collapse of Communist regimes in Eastern Europe.

Today, the euphoria has given way to a lull and even a certain apprehension. Some analysts are pessimistic; for instance, the French Observatory for Economic Circumstances (OFCE), believes that French companies will continue to have difficulty acquiring Eastern European market share.

Most players are now aware that returns on investments will take much longer than expected, given the difficulty of financing contracts in these countries and the often strict export controls to the East enforced by the Coordinating Committee for Multilateral Export Controls (Cocom). About 50% of the 81,000 export authorizations given to U.S. firms last year were reportedly superfluous.

Cocom controls were particularly strict in the computer sector, where it is forbidden to export computers with processing power greater than that of an Intel Corp. 80286-based personal computer.

However, at a Cocom meeting held here in June, attendees agreed to end all export controls on personal computers up to a so-called processing data rate (PDR) of 275 bit/sec., the equivalent of an 80386-based PC. It will be up to Cocom members to decide whether to license systems with a PDR of 450. Cocom is expected to consider licensing sales of computers with a PDR of up to 1,000, which would cover more powerful minicomputers and some mainframes.

The Soviet PC installed base is estimated at between 500,000 and 1 million units, compared with about 40 million in the U.S. The situation is reportedly not much better in Moscow's former satellite countries.

Evidence of this liberalization of export curbs is already apparent: U.S. authorities have given Control Data Corp. the go-ahead to deliver six large Cyber 962 systems, worth about $32 million, to the Soviet Union. These systems are to be used for nuclear plant security — at Chernobyl, for example.

According to IBM's West German subsidiary, the computer market in East Germany is expected to explode in the next 10 years and be worth about$21 billion by 2000, compared with $1.8 billion last year. Czechoslovakia, Hungary and Poland are seeking preferential treatment from Cocom.

However, most European and U.S. computer suppliers did not wait for either the June Cocom meeting or the fall of Communism to move into Eastern Europe.

In 1987, the U.S., Japan, UK, France, Italy and West Germany exported high-tech products worth about $1.12 billion to those countries. A third of this amount, or $374 million, came from computer systems sales; 50% of that figure was generated by West German firms.

Soviets stirring

In the Soviet Union, foreign companies are also seeing the stirring of near-dormant operations. IBM's Moscow office, for instance, has been open since the mid-1970s but has generated very little business to date.

However, IBM Senior Executive Michael Armstrong's April visit to Soviet Prime Minister Nicolei Ryjkov in Moscow proved fruitful. IBM recently announced an agreement with the Soviet Ministry of Education to deliver 13,000 PCs.

Reportedly worth between $10 million and $20 million, this contract is only a drop in the bucket compared with the contract signed by West Germany's Siemens AG and the Soviet Union a year ago. Under that pact, Siemens will supply the USSR with 300,000 PCs valued at $880 million. Although Cocom has cleared the deal, it has been delayed by a lack of appropriate financing even a year after the agreement was signed.

Nor is the Soviet Union restricting itself to the big, established firms. Earlier this month, Atlanta-based Craftsman Electronics, Inc., a 1-year-old company that buys computer manufacturers' excess inventory and sells it at a discount, signed on to supply the Soviet Union with 30,000 personal computers — mostly IBM Personal Computer ATs — and related equipment to be used in the Soviet educational system. The Soviet Union will pay Craftsman the $51 million contract price in U.S. dollars through a loan from a European bank, according to Craftsman.

A significant difficulty of doing business with former Communist countries involves the financing of contracts. Now that Cocom has relaxed export controls, the lack of financial resources, especially in convertible currencies, is the major barrier for business with the East Bloc. East Germany, which has had a convertible currency in the Deutschmark since July 1, is the only exception.

IBM, on the other hand, said that its PC deliveries will be paid for in dollars. To alleviate hard currency problems, other vendors, such as France's Groupe Bull and Digital Equipment Corp., prefer to set up joint ventures with local firms. Bull has created the joint venture Hungarian French Computer Co. with Hungary's Videoton.

Long-term profit

Focusing on marketing and assembling computer systems, this new company is expected to cost several hundred million francs in investments and be profitable in the long term. Nonetheless, Bull hopes to multiply its turnover in Eastern Europe during the next three years.

According to the firm, revenue is expected to total $150 million in 1993, compared with about $15 million in 1989.

DEC, the first major U.S. manufacturer to venture so openly into Eastern European markets, has also created a joint company with a Hungarian enterprise. More modest than Bull's project, DEC's investment totals about $2 million.

Texas Instruments, Inc. has also decided to set up an office in Budapest, from which it will "evaluate marketing opportunities in the Hungarian, Polish and Czechoslovakian markets," according to the firm.

The No. 1 life cycle method

Demand is solid for specialists in information engineering development

BY SHERYL KAY
SPECIAL TO CW

As computer-aided software engineering catches on, proficiency in the development methods that CASE tools support should serve information systems professionals well. One of the most popular methods is information engineering.

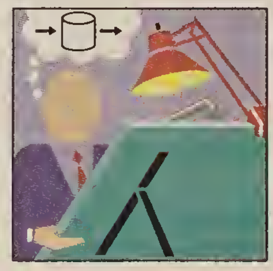
The number of people practicing information engineering has more than doubled in the past two years, according to several recruiters. Among consulting and software companies specializing in the field, the growth has been more rapid.

A study issued last month by Case Research Corp. in Bellevue, Wash., finds information engineering to be the most popular of the third-party life cycle methods in use.

Of 186 organizations surveyed, 12% use information engineering, compared with 9% for the second most popular commercial choice, Andersen Consulting's Method/1.

The study suggests that demand for people who know information engineering will continue. Among the companies that have adopted information engineering, all plan to increase their use of it.

Given the demand for their services, information engineering specialists are earning more than generic systems analysts. Nationwide, specialists with three to five years of experience bring in $30,000 to $50,000 per year, according to James B. Ray, director of MIS at the Jack Eckerd Corp., a drugstore chain in Clearwater, Fla. Systems professionals with more than 10 years of IS experience and several years in information engineering can earn $60,000 per year or more, Ray says.



In general, senior systems analysts with an average of 10 years of IS experience earn about $45,000 per year, according to *Computerworld*'s latest salary survey.

Ray has found information engineers in short supply. "The ones that are really good are having successful careers where they are and have no reason to make a change," he says. The few that he has been able to hire felt their employers weren't moving quickly enough to embrace the method.

Ask 10 IS professionals what information engineering is and you're likely to get 10 different answers. Many of the practitioners don't know where it came from.

The method was popularized by software gurus James Martin, the founder of Knowledgeware, Inc. in Atlanta, and Clive Finkelstein; the two first wrote about it in 1981, says Sam Holcman, president of Southfield, Mich.-based Computer and Engineering Consulting Ltd.

Information engineering is a data-oriented method — it emphasizes the organization of data more than traditional approaches to systems development, which tend to revolve around the business process or application in question. It applies to all phases of the development life cycle, Holcman says.

Information engineering, which relies on graphical modeling and planning tools, calls for a single database to handle a certain type of data.

Applications such as a payroll or employee tracking system pull data from this central source. Systems built more conventionally usually include their own data stores even if they get some information from a central source.

This approach can reduce the amount of redundant data, cutting the costs of storage and updating, and can make it easier to introduce a new application or revise an existing one, says Les Hazelrigg, a project manager at Jack Eckerd.

While the concepts behind information engineering date back to the 1960s, implementation of the theory is a more recent phenomenon. In fact, many IS managers still resist the practice.

> "YOU CAN'T BE a cowboy out there on the range all alone."
>
> SAM HOLCMAN
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"Some people don't want to accept the changes the information engineer will implement," says Ron Kuznicki, manager of the automated systems environment at United Services Automobile Association in San Antonio. Such people say they have been developing systems without problems, so why adopt a new method, Kuznicki says.

Companies in a variety of industries employ information engineering. They tend to be big organizations that need the consolidation of data the method offers and can afford the expense it involves, Ray says.

The principles of information engineering are not complex or difficult to learn, Kuznicki says. IS professionals often learn these principles through in-house courses or public seminars put on by training vendors.

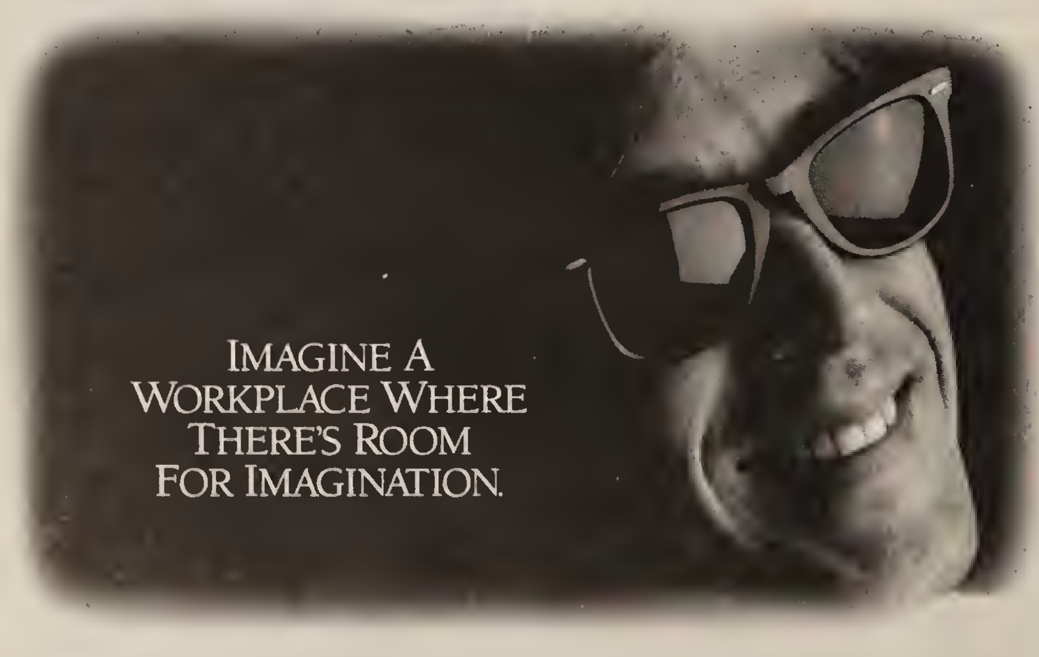
Prospective information engineers should have a strong mainframe background and experience in on-line systems, databases and data modeling.

They should also be excellent communicators who can extract information from people at all levels of management. "You can't be a cowboy out there on the range all alone," Holcman says.

Information engineers lead Joint Application Design sessions, which bring together users and IS people to review a system's functions, procedures, reports and screens. To lead such meetings, they need superior interpersonal skills.

Demand for specialists in information engineering and similar development methods should continue to grow with both the use of CASE and closer interaction between developers and end users, experts say. "Programming as we traditionally recognize it will disappear, and the IS professional will become more immersed in analysis," Ray says.

Kay is a business consultant and freelance writer specializing in emerging technologies and human resources.



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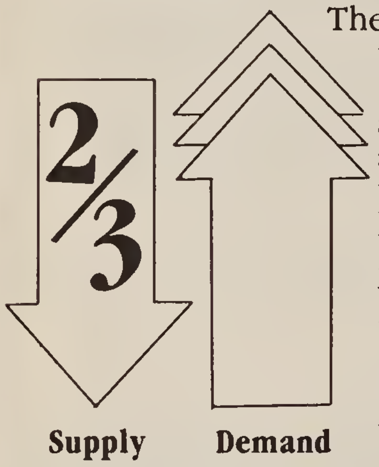
A few important tips on recruiting computer professionals

Finding computer talent isn't as easy as it used to be. In fact, there was a time when you'd just run an ad in the local newspaper and you could make a hire without waiting too long or spending too much.

But times have changed. And like so many facets of today's business, so has the effectiveness of traditional recruiting methods.

What's more, many of today's recruiters *don't use* today's most efficient methods — methods that save time and money for some widely unknown reasons.

The supply of qualified professionals isn't meeting demand



The American Council on Education reports that the number of college students choosing computer careers is down two-thirds since 1982. To make matters worse, there are more computers in today's business that require the skills of this shrinking market than ever before. And while you may never consider the company next door your competitor, it likely *is* competing for the same computer talent today. The result is a classic supply/demand problem that isn't changing for the better -and that's sure to make your recruiting tougher in the '90s.

Ads in local papers don't reach your major hiring market anymore

That's because they generally reach "active" job seekers — those who actively seek out the local newspaper to find jobs — and who a recent *Computerworld* job satisfaction survey found to represent 2 in 10 of today's computer professionals. The study also found that 7 in 10 of today's computer professionals are "passive" job seekers — those who would *consider* new job options, but likely never look for them in the local newspaper. (The remaining small percentage are "non-movers" content with long-term jobs.)

For every 10 of today's computer job seekers . . .
2 are Active ▢ ▢
7 are Passive ▢ ▢ ▢ ▢ ▢ ▢ ▢
1 is a Non-mover ▢

In short, this means that your ad in today's local newspaper reaches no more than 20 percent of today's computer job seekers. What's worse, if you're not using other vehicles that reach far more job seekers, your local newspaper expenses are as inefficient as their limited audience.

More job seekers see your ad in Computerworld than in any other newspaper — Sunday, daily, or trade

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Computerworld gives you regional editions

A key option when you need a regional candidate and want to avoid national response and relocation. Yet if your search is national in scope, *Computerworld* can also give you more widespread national exposure than any other source.

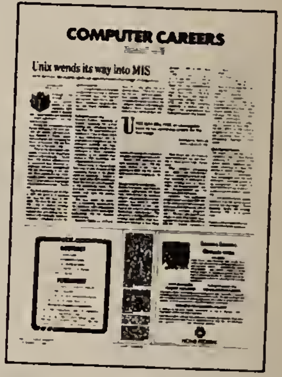
Computerworld needs just 3 working days for your ad to appear

That's comparable to most local newspapers. And why your ad can quickly appear in the next issue to start generating quality response.

Computerworld costs no more than local papers

And with a regional line rate of just $10.80, your cost-per qualified candidate reached is better than *any* newspaper - Sunday, daily or trade. Or just about any other source, for that matter.

Computerworld leads candidates to your ad



Just look at this week's Computer Careers section. You'll find a career editorial topic that will stir the interest of virtually any computer job seeker — passive *or* active. It's just one of countless reasons *Computerworld* is America's newspaper of choice on computing. No matter how much the times change.

And while times may change, some things won't. Whether you *use* computers, *make* computers, or sell products and services *for* computers, *Computerworld* is still your major source of news today. And your major source of computer professionals tomorrow.

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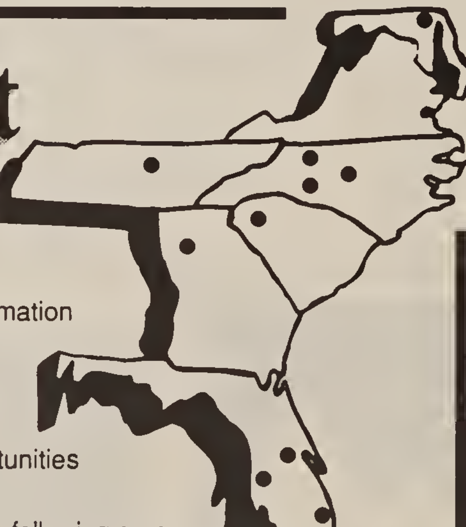

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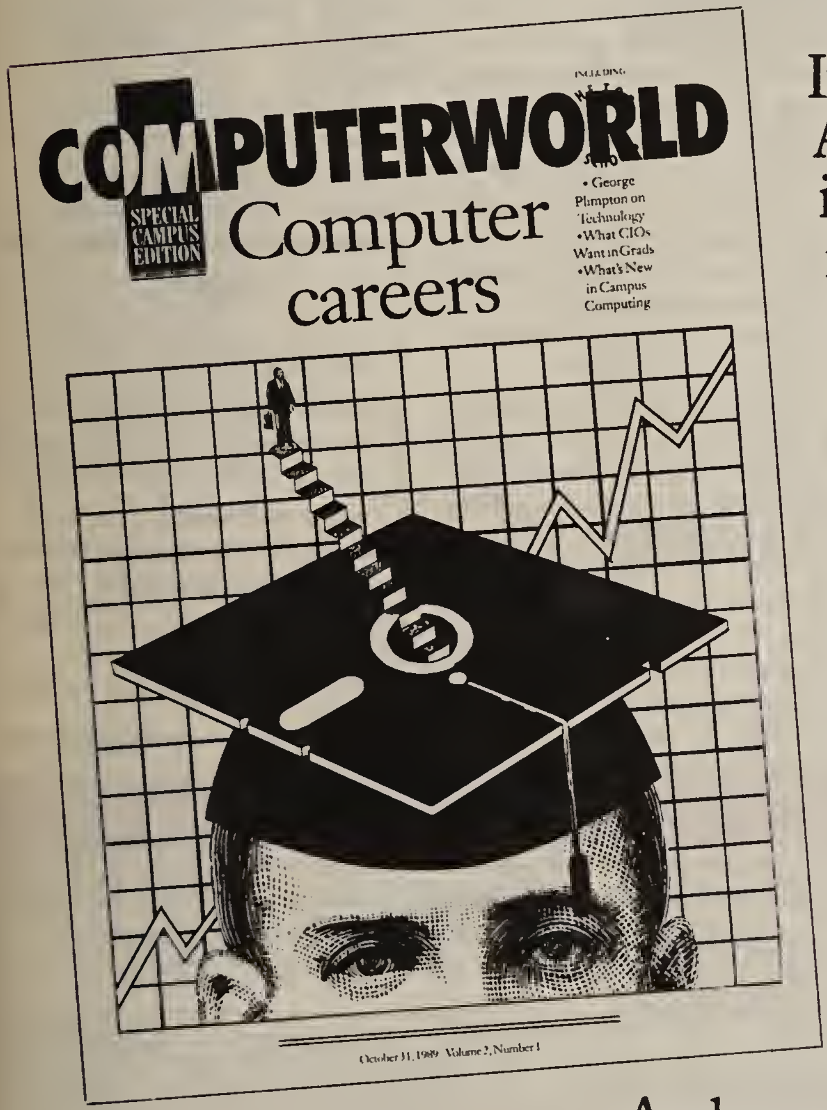
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- MIS salary and job satisfaction survey
- Where are the best jobs?/What positions are hot?
- Experiences of recent MIS graduates in their first jobs and what helped them in school
- The MIS career ladder
- Profiles of acclaimed top level MIS executives
- The strategic advantage of computers and how they play a key role in running a company

MARKETPLACE

Pulling procurement together

A central staff to acquire products and services can mean big savings

BY JAMES R. TAYLOR
SPECIAL TO CW

Today, companies are finding that they must invest heavily in information technology: Their success depends on it. But the costs of the hardware, software and services that they need are bounding upward.

The challenge is complicated by a bewildering proliferation of vendors and products in the face of the requirement for a corporate architecture that is compatible, connectable and integrated.

Given this scenario, corporations can generate substantial benefits through a technology procurement organization located strategically at a single site close to executive management.

Members of this central procurement staff need specialized know-how in finance, technology and project management. They need to understand a wide range of information technologies, as well as subjects such as contract negotiations and financial analysis. They must also understand their corporation's financial "capacity" — its ability to plan and absorb costs over the useful life of technology assets.

Working with corporate management, these specialists can create and implement corporatewide procurement policies and procedures that are aligned with the firm's technical architecture and financial strategies.

Let's briefly examine a centralized procurement for data processing equipment. Hardware procurement encompasses the full life cycle of the asset, starting with a definition of needs and then continuing through product selection, acquisition, financing, installation and replacement. The process starts when a manager from one site identifies the need for upgraded or replacement equipment. He conveys the need to the central procurement staff, which can align it with the corporation's technology architecture, capacity planning and financial policy.

The central staff reviews its inventory of installed equipment, which includes locations and financial obligations. It can review the terms and conditions of existing leases, license agreements, volume purchase agreements (VPA) and master lease agreements. The staff can then submit requests for proposals to vendors, negotiate contracts and, ultimately, execute the agreements. It ensures that agreements will benefit the entire corporation.

The equipment that the staff supplies may be acquired within the corporation or from the open market. Equipment no longer required or coming off lease at another site might meet the requirements.

If so, the procurement staff may need to negotiate lease renewals or extensions or acquire replacement equipment for the site supplying the gear. Site managers establish the timing of the removal and installation; a procurement specialist ensures that the corporation meets contract terms and financial obligations.

The procurement team might make an outside acquisition through an existing corporatewide VPA, or it may negotiate a new one. In general, a centralized staff with corporatewide perspective is more likely than people at a single site to recognize opportunities for savings and act on them. By transferring equipment from one site to another, for example, one location might avoid penalties for early termination of a lease, and the other one might get preferred terms by renegotiating and extending the existing lease.

The central staff determines whether equipment will be purchased or leased using a standard analysis developed and approved by corporate management. It also negotiates leases, since the financial benefits affect all sites.

The volumes involved can bring down lease rates significantly. The staff can keep track of corporatewide activities and spread knowledge around to help drive down everyone's costs.

A central procurement staff can generate similar savings and benefits in the areas of software licenses and service agreements through techniques tuned to the nuances of these products and services. For a central procurement staff to be effective, management must clearly define and communicate its roles and responsibilities — spanning technical, financial and contract issues. Open and obvious support by senior management is crucial to help establish credibility across the organization.

Centralizing procurement can bring together a critical mass of expertise that may already exist piecemeal at scattered sites. This expertise may be in finance, technical or legal departments whose members have spent part of their time on aspects of technical procurement.

The centralized positions can be filled by selecting the best technical, financial and legal people. Centralizing the function does not necessarily mean increasing staff levels. On the contrary, it might result in a decrease in overall staff by concentrating the expertise in one location where everyone can share it.

Centralized procurement can generate savings through rock-bottom prices and aggressive lease rates. These savings can be measured in hard-cost avoidances on the basis of dollars per million instructions per second or byte of storage. The negotiating experience the staff acquires will lead to agreements and contracts that benefit the entire corporation, minimize legal risk and enforce management's financial strategies and architectural standards.

Taylor is an associate with the Center for the Study of Data Processing at Washington University in St. Louis.

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AT Model 239	$1,125	$1,325	$700
AT Model 339	$1,275	$1,400	$900
PS/2 Model 50Z	$1,650	$2,000	$1550
PS/2 Model 60	$2,500	$2,600	$2,400
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Portable III	$2175	$2,500	$1,900
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IS upheavals mean educators need to steal a page from marketers' book

BY STEWART L. STOKES JR.
SPECIAL TO CW

The internal marketplace for information systems training and education is undergoing fundamental changes that pose a serious challenge for training managers.

Training organizations must do more with less; they must deliver more relevant and timely education using fewer resources. Many of the organizations face a shrinking customer base as their enterprise downsizes. In addition, more and more IS professionals are dispersed among business units.

The challenge for IS training groups is to get more out of limited resources and to market their services in an innovative and disciplined way; they must direct the resources at the areas that promise the greatest payoff.

The organizations need to promote training and education as valuable resources for their customers through an internal marketing program. The goal should be to eliminate the perception of IS education as an activity that is nice to have but time-consuming and costly. Instead, the training should be presented as a resource that is timely, cost-effective and necessary.

To accomplish this goal, many organizations must give up their traditional production orientation, which focuses on the number of people who go through programs and courses. What they need is a marketing orientation that zeroes in on important target markets and on the timely, relevant and cost-effective training these markets need.

Figures such as the number of people trained in CICS may provide interesting statistics for the training department's annual report; however, they reinforce the notion that courses are a commodity and that it is best to bring in the cheapest provider. They also reinforce the impression that people who provide training are basically clerks, so their jobs can't be worth much money.

Adopting a marketing orientation involves the following three thrusts:

1. Conduct a "SWOT" analysis of training — an examination of its strengths, weaknesses, opportunities and threats.
2. Segment markets and identify target markets.
3. Develop a marketing mix to reach target markets.

The SWOT analysis should identify the training organization's distinctive competencies. Training managers should conduct a SWOT analysis of their organization and ask their key customers to do the same. They should pay attention to their customers' opinions, for it is these views that will have the greatest impact on the organization's long-term success.

The SWOT analysis leads to market segmentation and target marketing. A market segment is a distinct group of customers identified by variables such as location, function, technologies employed or volume of training services consumed.

Target markets are subsets of these segments. They tend to be more specific and focused. They should also be important to the enterprise. They may be high-priority departments, task forces, work groups or people who will be working together more closely or taking on new responsibilities. Target markets can be individuals as well as groups.

There are a few key questions for IS trainers and senior IS managers to ask as they segment and target markets for training services, including the following:

- Where can IS trainers add the most value to their customers' businesses?
- How can IS training make the greatest contribution?
- In what ways can the IS training organization build partnerships with its customers?

The marketing mix is the combination of resources used to influence target markets. A marketing mix might include literature developed for the target market, group or individual presentations, champions outside the training department who promote programs, advertising for specific programs and training events.

One training manager is reaching target markets through IS training fairs, which leverage her time and energy. She works in a decentralized firm; her customers are scattered geographically and among business units.

This manager also relies on individuals with whom she has built a training support network to help her communicate with target markets. Using her network and her knowledge of the business units, she identifies target market needs, and the themes of her training fairs reflect these needs.

Internal customers turned out en masse for one recent fair because they had been involved in the planning; thus, their interests were represented. Training vendors did the same because they knew they would face a well-targeted audience. The event earned the manager accolades from her IS management.

Coping with the challenges of a changing marketplace requires innovation in all realms of the IS world. Adopting a marketing orientation and positioning services as a valuable resource will help ensure the well-being of IS training organizations.

Stokes is a senior vice-president of QED Information Sciences, Inc. in Wellesley, Mass.

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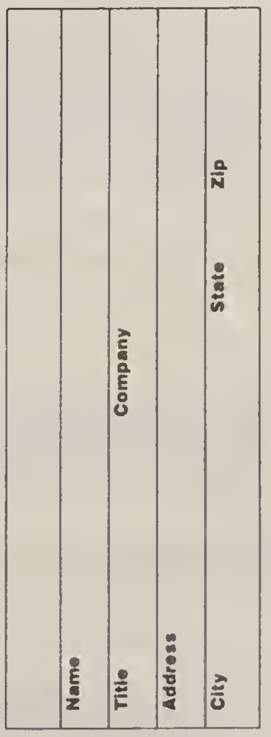

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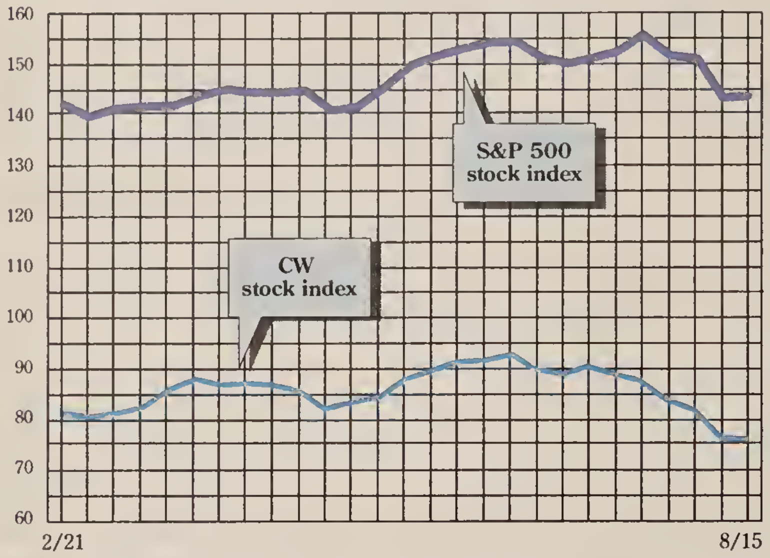

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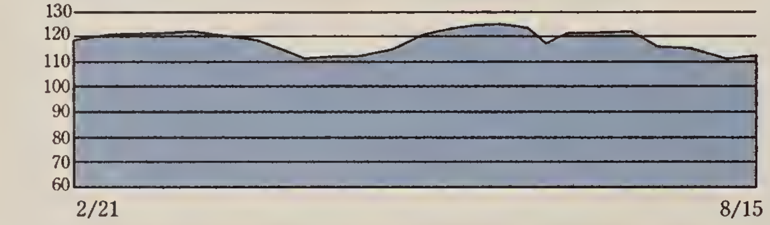

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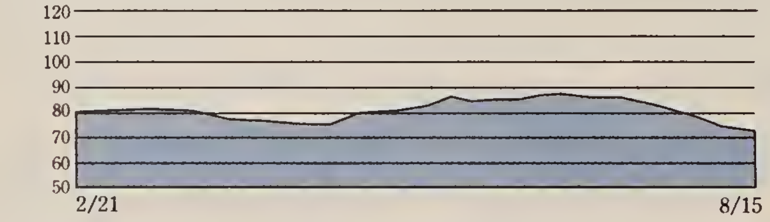

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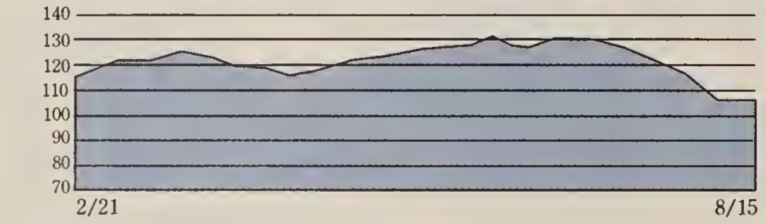

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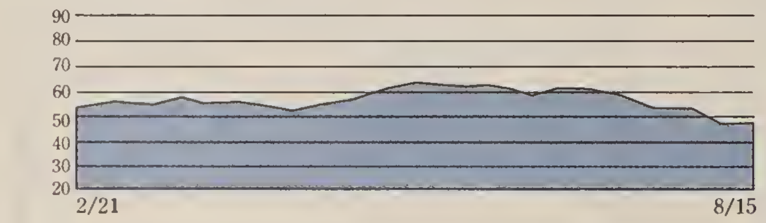

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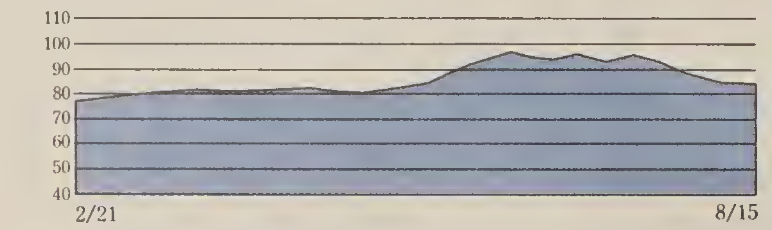

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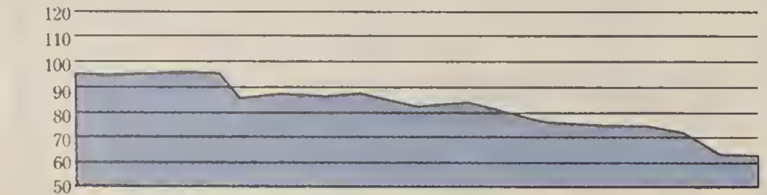

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Communications and Network Services

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
N	AMERICAN INFO TECHS CORP	68	55	59.875	-0.3	-0.4
Q	ANOREW CORP	26	16	16.5	-0.5	-2.9
Q	ARTEL COMM CORP	10	3	3.5	0.0	0.0
N	AT&T	47	34	35.25	0.3	0.7
Q	AVANTEK INC	7	2	2.75	-0.1	-4.3
N	AYOIN CORP	21	13	12.875	-0.4	-2.8
N	8ELL ATLANTIC CORP	57	43	46.5	0.0	0.0
N	8ELLSOUTH CORP	59	49	53.75	-0.1	-0.2
Q	COMPRESSION LA8S INC	16	7	13.375	0.1	0.9
Q	CONTEL CORP	37	23	31.875	0.0	0.0
Q	DATA SWITCH CORP	4	2	3.938	0.4	12.5
Q	OIGITAL COMM ASSOC	27	17	19.625	-1.4	-6.5
Q	OYNATECH CORP	21	15	17.5	-0.8	-4.1
Q	FI8RONICS INTNL INC	13	5	9.25	-0.6	-6.3
Q	GANOALF TECHNOLOGIES	6	2	3	0.0	0.0
N	GENERAL DATACOMM INDS	7	3	3.125	-0.3	-7.4
N	GTE CORP	36	26	27.625	0.1	0.5
Q	INFOTRON SYS CORP	11	3	3.25	0.3	8.3
N	ITT CORP	65	51	55.75	1.0	1.8
N	M A COM INC	7	3	4.625	-0.1	-2.6
Q	MCI COMMUNICATIONS CORP	49	31	36.5	1.6	4.7
N	NETWORK EQUIP TECH INC	34	6	7.25	0.8	11.5
Q	NETWORK SYS CORP	15	7	10.375	0.3	2.5
N	NORTHERN TELECOM LTO	30	20	26.375	0.1	0.5
Q	NOVELL INC	59	24	49	3.1	6.8
N	NYNEX CORP	92	73	76	0.6	0.8
N	PACIFIC TELESIS GROUP	52	40	42	0.8	1.8
A	PENRIL CORP	9	5	7.375	0.3	3.5
N	SCIENTIFIC ATLANTA INC	29	19	23	1.0	4.5
N	SOUTHWESTERN 8ELL CORP	65	51	52.75	0.0	0.0
Q	3 COM CORP	19	10	14.5	0.8	5.5
N	U S WEST INC	41	33	36.125	0.0	0.0

Computer Systems

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLIANT COMPUTER SYS	9	3	3.063	-0.8	-21.0
Q	ALPHA MICROSYSTEMS	7	2	2.125	-0.1	-5.6
Q	ALTOS COMPUTER SYS	8	5	8.125	0.0	0.0
A	AMDAHL CORP	19	11	12.125	-1.3	-9.3
Q	APPLE COMPUTER INC	50	32	39.25	-0.9	-2.2
Q	AST RESH INC	26	7	21	1.0	5.0
N	8OLT 8ERANEK & NEWMAN	9	4	5	0.8	17.6
N	COMPAQ COMPUTER CORP	68	37	53.375	-1.0	-1.8
N	COMMOOORE INTNL	12	6	6.375	0.0	0.0
N	CONTROL DATA CORP	22	13	13.125	-0.8	-5.4
N	CRAY RESH INC	51	31	36	-2.5	-6.5
N	OATA GEN CORP	16	5	5.375	-0.8	-12.2
N	OATAPOINT CORP	6	1	1	-0.5	-33.3
Q	OELL COMPUTER CORP	14	5	12.375	1.8	16.5
N	OIGITAL EQUIP CORP	103	67	69.875	0.6	0.9
N	FLOATING POINT SYS INC	4	0	1.75	-0.5	-22.2
N	HARRIS CORP	40	26	27.25	0.3	0.9
N	HEWLETT PACKARD CO	53	36	37.75	-0.8	-1.9
N	HONEYWELL INC	112	73	99.5	1.1	1.1
N	IBM	123	93	105	1.9	1.8
Q	INFORMATION INTL INC	16	12	11.875	-0.3	-2.1
Q	IPL SYS INC	14	5	10	-0.3	-2.4
N	MAI 8ASIC FOUR INC	6	2	1.875	0.0	0.0
N	MATSUSHITA ELEC INOL LTO	178	118	127	2.8	2.2
Q	MENTOR GRAPHICS CORP	26	14	14.5	-0.8	-4.9
N	N8I INC	2	0	0.234	0.0	-6.4
N	NCR CORP	72	55	65	-0.3	-0.4
Q	PYRAMIO TECHNOLOGY	36	13	21.5	1.8	8.9
Q	SEQUENT COMP SYS INC	34	14	25	-1.5	-5.7
Q	SUN MICROSYSTEM INC	37	13	28.25	-2.0	-6.6
Q	SYM8OLICS INC	2	0	0.375	-0.1	-25.0
N	TANOEM COMPUTERS INC	30	17	17.375	-0.3	-1.4
N	TANOY CORP	48	30	31.875	-1.6	-4.9
N	ULTIMATE CORP	11	5	6.625	0.3	3.9
N	UNISYS CORP	22	9	9.75	-0.3	-2.5
A	WANG LA8S INC	7	3	3.375	-0.4	-10.0

Software & DP Services

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	AMERICAN MGMT SYS INC	20	11	16.375	1.6	11.0
Q	AMERICAN SOFTWARE INC	18	8	9.25	-0.9	-8.6
N	ANACOMP INC	6	2	2.5	-0.1	-4.8
Q	ANALYSTS INTL CORP	24	14	17	-0.5	-2.9
Q	ASHTON TATE	15	8	8.625	-0.4	-4.2
Q	ASK COMPUTER SYS INC	12	7	9.25	0.4	4.2
N	AUTO OATA PROCESSING	60	40	51.875	1.8	3.5
Q	AUTOOESK INC	60	33	48.75	-0.3	-0.5
Q	8MC SOFTWARE INC	30	14	24.75	1.5	6.5
N	8USINESSLAND INC	14	2	3.5	-0.3	-6.7
Q	COGNOS INC	10	4	8.375	-0.4	-4.3
N	COMPUTER ASSOC INTL INC	18	7	7.25	-0.4	-4.9
Q	COMPUTER HORIZONS CORP	17	7	14	0.8	5.7
N	COMPUTER SCIENCES CORP	59	40	41.625	0.0	0.0
N	COMPUTER TASK GROUP INC	13	9	9.75	0.3	2.6
Q	COMSHARE INC	25	16	21	0.8	3.7
Q	CORPORATE SOFTWARE	16	8	12.5	-0.8	-5.7
N	GENERAL MTRS (CLS E)	38	24	32.625	2.0	6.5
Q	GOAL SYSTEMS INTL	18	10	12.5	-1.3	-9.1
Q	HOGAN SYS INC	7	2	3.25	-0.3	-7.1
Q	INFORMIX CORP	18	8	8.25	0.0	0.0
Q	INTELLICORP INC	8	4	4.25	0.0	0.0
Q	LEGENT CORP	32	19	22	0.8	3.5
Q	LOTUS OEV CORP	39	19	19.25	-1.5	-7.2
Q	MICROSOFT CORP	81	28	64.25	0.8	1.2
Q	NATIONAL OATA CORP	35	11	11.75	-0.8	-6.0
N	ON LINE SOFTWARE INTL INC	11	6	7	0.4	5.7
Q	ORACLE SYS CORP	188	15	15.625	-0.4	-2.3
N	PANSOPHIC SYS INC	19	10	10.375	-0.9	-7.8
Q	PHOENIX TECHNOLOGIES INC	6	2	2.875	0.0	0.0
N	POLICY MGMT SYS CORP	43	30	43.375	0.0	0.0
Q	PROGRAMMING & SYS INC	25	15	15.5	-1.0	-6.1
Q	RELATIONAL TECH INC	10	4	4.875	0.4	8.3
N	REYNOLOS & REYNOLOS CO	27	17	16.625	-0.6	-3.6
Q	SAGE SOFTWARE INC	16	7	12	1.0	9.1
Q	SEI CORP	22	15	19.75	0.8	3.9
Q	SHAREO MEO SYS CORP	17	12	14	0.9	6.7
Q	SOFTWARE PU8G CORP	28	14	23.125	-0.4	-1.6
N	STERLING SOFTWARE INC	11	7	8.875	0.3	2.9
Q	SUNGARD OATA SYS INC	26	18	21	-0.3	-1.2
N	SYSTEM CENTER INC	25	13	12.75	-0.5	-3.8
N	SYS. SOFT INC	29	16	24.75	2.4	10.6
Q	WORDSTAR	2	1	0.875	0.1	16.7

Semiconductors

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
N	ADV MICRO OEVICES INC	11	5	6	0.4	6.7
N	ANALOG DEVICES INC	11	6	6.875	0.3	3.8
Q	ANALOGIC CORP	11	8	9.125	-0.1	-1.4
Q	CHIPS & TECHNOLOGIES INC	26	14	14.25	-1.5	-9.5
Q	INTEL CORP	52	28	37	-0.1	-0.3
Q	MICRON TECHNOLOGY INC	16	7	9.125	-0.3	-2.7
N	MOTOROLA INC	88	53	74.75	-1.3	-1.6
N	NATL SEMICONOUCTOR	9	5	5.125	-0.3	-4.7
N	TEXAS INSTRS INC	44	28	29.5	0.5	1.7
A	WESTERN OIGITAL CORP	15	6	11	1.1	11.4

Peripherals

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLOY COMP	2	0	0.5	0.1	14.2
N	AM INTL INC	6	2	1.875	-0.1	-6.3
Q	AUTO TROL TECH CORP	5	2	2.75	0.0	0.0
Q	8ANCTEC INC	24	13	18.75	0.5	2.7
A	COGNITRONICS CORP	8	3	5.5	0.1	2.3
Q	CONNER PERIPHERALS	31	11	24.625	1.1	4.8
A	DATARAM CORP	22	8	13	-2.9	-18.1
N	EASTMAN KODAK CO	51	36	42.625	1.5	3.6
N	E M C CORP MASS	7	3	5.625	0.1	2.3
Q	EMULEX CORP	9	4	6	-0.5	-7.7
Q	EVANS & SUTHERLAND	35	18	26.25	0.5	1.9
Q	ICOT CORP	2	1	1.313	0.0	0.0
Q	INTERLEAF INC	8	5	5.125	0.0	0.0
Q	IOMEGA CORP	6	3	4.5	-0.1	-2.7
Q	MASSTOR SYS CORP	4	1	1	-0.1	-11.1
Q	MAXTOR CORP	17	7	9.75	0.1	1.3
Q	MICROPOLIS CORP	10	3	6.5	-0.5	-7.1
N	MINNESOTA MNG & MFG CO	91	68	84.875	0.9	1.0
Q	PERSONAL COMP PROOUCTS INC	5	4	3.875	-0.1	-2.4
Q	PRINTRONIX INC	15	8	11.125	0.0	0.0
N	QMS INC	21	9	15.5	-0.5	-3.1
Q	QUANTUM CORP	26	9	19.125	0.4	2.0
N	RECOGNITION EQUIP INC	9	4	5.25	0.3	5.0
Q	REXON INC	10	5	5.75	-0.3	-4.2
Q	SEAGATE TECHNOLOGY	20	10	10.75	-0.3	-2.3
N	STORAGE TECH CORP	35	9	21.625	0.1	0.6
Q	TANOON CORP	4	1	2.375	0.1	2.7
N	TEKTRONIX INC	22	12	13	-1.0	-7.1
Q	TELEVIDEO SYS INC	1	0	0.281	-0.1	-18.3
N	XEROX CORP	69	43	44.25	-0.4	-0.8

Leasing Companies

EXCH		PRICE 52-WEEK RANGE		PRICE CLOSE AUG. 15, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
N	CAPITAL ASSOC INTNL INC	7	2	1.688	-0.1	-3.5
N	COMOISCO INC	34	17	17.75	-0.3	-1.4
Q	LDI CORPORATION	18	13	13.25	0.3	1.9
Q	PHOENIX AMERN INC	5	3	3.063	0.1	2.1
Q	SELECTERM INC	9	3	3.25	0.0	0.0

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL

Shell shock

Wars and rumors of recession send stock prices diving

Shock waves from the Persian Gulf broadsided the stock market last Thursday, and technology stocks were as hard hit as any. While the Dow Jones industrial average plunged more than 66 points on fears of conflagration in the Middle East and recession at home, computer firms either saw early-week gains turn to dust or lackluster performances turn downright abysmal.

Hewlett-Packard Co. made matters worse by announcing a 5% quarterly earnings drop on Thursday, sending its stock to a new 52-week low of 35⅞, down 1⅞ points for the four days. Digital Equipment Corp. lost two points to 67⅝, barely above its low for the year. Others with new lows at Thursday's bell were Data General Corp. at 5¼ and Stratus Computer, Inc. at 18¼.

Sun Microsystems, Inc. investors were not enamored with the Sun-IBM licensing pact (see story page 8). Sun's stock fell ¾ of a point Wednesday after the announcement and closed Thursday at 27½, down 3½ points for the week. IBM gained ⅝ of a point on the news Wednesday, helping it to finish the week up 1¼ points to 103¾, despite Thursday's drop of 1¼ points.

Bad news found its way to Compaq Computer Corp., down 2⅜ points to 51½, and Intel Corp., down 2¼ points to 36. Apple Computer, Inc. fared better, losing just ¼ of a point to close at 38½.

Software took it on the chin, too. Lotus Development Corp. fell 3¼ points to 17, Microsoft Corp. lost 2¼ points to 61¾, and Computer Associates International, Inc. was down ⅜ of a point to tie its 52-week low of 7.

CLINTON WILDER

NEWS SHORTS

HP revenue up, profit down

Reflecting an unanticipated increase in tax rates and minor pressure on its profit margins, Hewlett-Packard Co.'s third-quarter revenue was up 8%, but net earnings decreased by 5%. HP expected to be taxed at a rate of 23%, but the quarter's taxes were 30%, a spokeswoman said. That made an $18 million difference between this quarter and last, on revenue of $2.48 billion. The profit margin decreased from 8% to 7.9%, according to the company. Additionally, HP noted that its work force was cut by 1,000 during the quarter, totalling 3,000 fewer staff members in the last three quarters.

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Furniture maker designs EDI plan

Haworth, Inc., one of the country's leading office-furniture makers, will sit down at the electronic data interchange table next month. The $500 million firm, based in Holland, Mich., plans to spend $300,000 to $400,000 on what it calls its electronic order-processing system and expects that 80% of its orders will be processed on-line by the middle of 1991. To encourage its 300-plus dealer network, Haworth will defer about $1,500 in hardware, software and transmission costs for dealers who sign up for the program by Oct. 1.

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Unix International maps strategy

During the next few months, Unix International will be releasing its plans for tackling distributed computing, network management and the Open Systems Interconnect model. "Our charter has broadened beyond the operating system," said Peter Cunningham, president and chief executive officer. He also said the organization has gotten "fantastic response" to its offer to help software vendors port their applications over to Unix. The goal is to double the current number of Unix applications to 30,000 by 1993. About 50 vendors have already begun porting their applications, and another 800 are interested in doing so, Cunningham said.

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Intex prepares 1-2-3 add-in

When Lotus Development Corp. ships 1-2-3 Release 3.1 in a couple of weeks (see story, page 16), add-in developer Intex Solutions, Inc. will be ready with compatible versions of eight add-in products: Forecast, Inventory Analyst, Rescue Plus, Trans for 1-2-3, Financial Toolkit, Intex Bond Calculations, Intex Mortgage-backed Calculation and Intex Option Price Calculations. Also slated for upgrades are 1-2-3 Release 3.0-compatible products @FunctionsIII and Guardian. Release 3.1 versions are slated to ship by year's end.

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Lotus plans CPA programs

Lotus will co-sponsor a continuing professional education course for certified public accountants through state CPA agencies. "Lotus Update for CPAs" will be offered at more than 30 locations nationwide. The course addresses the application of software to common accounting problems and uses 1-2-3 Releases 2.2 and 3.1 as a platform for the curriculum. Attendees will learn how to integrate 1-2-3 with other packages. Co-sponsors include the state agencies and several high-technology companies. Participants will be awarded credits toward the annual continuing education requirements of the state CPA societies.

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Fujitsu broadens ISDN support

Fujitsu Network Switching of America, Inc. has become one of the first vendors to offer terminal adapters that connect to Integrated Services Digital Network (ISDN) services based on either AT&T's or Northern Telecom, Inc.'s central office ISDN switch. Fujitsu has added support of Northern Telecom's DMS 100 to its two existing ISDN adapters, which enable user devices to communicate over an ISDN Basic Rate Interface. Users can configure the adapters to connect with either a Northern Telecom or AT&T switch by changing a feature cartridge, Fujitsu said.

NY State Police round up hackers

BY MICHAEL ALEXANDER
CW STAFF

The New York State Police rounded up 13 alleged computer hackers last week — including a 14-year-old boy who is accused of breaking into a U.S. Air Force computer at the Pentagon — and charged them with computer tampering and computer trespassing.

The hackers are suspected of altering some files and deleting others in a mainframe computer at City University in Bellevue, Wash., according to Donald Delaney, senior investigator and supervisor of the major case squad at the state police barracks in East Farmingdale, N.Y.

The hackers allegedly used an 800 number to break into the computer, making it easy to identify them, Delaney said. More than 40 hackers reportedly broke into the system, but only those who allegedly spent "an extended period of time," in the computer were arrested.

Eight of those arrested were juveniles, Delaney said. Police plan to arrest three more hackers this week and "probably more" later, he said.

Police seized computers, modems and other gear used in the break-ins from the homes of the 13 hackers.

Pentagon break-in

One of the hackers, a 14-year-old boy who used the handle Zod, is also accused of breaking into a Unix-based superminicomputer at the Pentagon.

He is alleged to be a member of a hacker group called MOD, an acronym for Masters of Disasters and Mothers on Drugs, among other appellations.

"The information gleaned from the computer is of unclassified, administrative nature," said Major Steve Headley of the Air Force investigations office at Bollings Air Force Base in Washington, D.C. "However, the office of special investigations of the Air Force is concerned primarily that the act was criminal of itself and . . . while it was innocuous, unclassified stuff, in aggregate, over a long period of time, it could have meaning or be perhaps sensitive." How and why the break-in occurred remains to be determined, Headley said.

The arrests came after a two-month investigation by a number of agencies, including the New York State Police, the Air Force Office of Special Investigations and the U.S. Secret Service.

Database

FROM PAGE 1

However, the legislation has been stalled by opposition from the chemical and trucking industries, as well as skepticism among legislators about whether a costly new computer system is needed. The firefighters have simply not made a compelling enough case for the system, according to Jeff Yohn, executive editor of "Hazardous Materials Transportation," a newsletter based in Arlington, Va.

Firefighters and other emergency personnel argued that, when faced with a hazardous chemical emergency, what they need most is fast, reliable information about the chemicals.

Unfortunately, the truck's paper manifest may be burned or inaccessible at the accident scene, and the government-mandated placard — those diamond-shaped warning signs — may be missing or obscured. Moreover, government studies have found that the placards are missing or incorrect between 25% and 50% of the time.

The computer system that the firefighters have in mind would provide emergency personnel with dial-up access to a mainframe database of electronic manifests, providing details about the contents of every hazardous material shipment. The information could be downloaded either by the local dispatcher or by on-site personnel with a computer or facsimile machine.

All generators of hazardous materials would be required to file an electronic manifest and pay a fee of approximately $10 to $12 to support the system.

Supporters have not produced an estimate for the cost of the system, but they noted that the only cost to the U.S. government would be the competitive contract to build the system. The cost to the chemical industry, if the filing fee is $12 per manifest, would be an estimated $2.1 billion per year.

The proposal is embodied in a bill sponsored by Rep. Douglas Applegate (D-Ohio) as well as 200 co-sponsors. John F. Mulholland, an entrepreneur who has been pushing for the system for five years, claimed that his company, Source Data Network, Inc. in Rockville, Md., already has an IBM mainframe data center ready to provide the service.

Actually, Congress did require a central information center in the Hazardous Materials Transportation Act of 1974, but the U.S. Department of Transportation decided to piggyback on a system called the Chemical Transportation Emergency Center (Chemtrec), which is run by the Chemical Manufacturers Association in Washington, D.C. (see story below).

Chemtrec's emergency hot line provides details on 570,000 chemical products and can put authorities in touch with various industry experts, but firefighters complain that it is virtually useless in cases in which the emergency responders do not know what chemical is in the truck. The fact that the Chemtrec system has worked well in many accidents is one reason that the Applegate bill has stalled. "If there was a real pressing need or Chemtrec wasn't working, [the Applegate bill] might have a better chance of passing," Yohn said.

At the moment, it appears that both the House of Representatives and the Senate will pass legislation authorizing a study of the issue, but not the Applegate bill, Yohn said.

The chemical manufacturers and the American Trucking Association have fiercely opposed the Applegate bill, claiming that it is too costly and unnecessary and that the system might be faulty because of data-entry errors or downtime. Supporters disagreed on all counts.

Hazardous details

The chemical industry's emergency information center has upgraded its computer systems to include a Filenet Corp. optical disc storage-and-retrieval system, which handles 570,000 data sheets on chemical products, according to Henry J. Sauer, the center's director.

When emergency personnel call the telephone hot line at Chemtrec in Washington, D.C., staffers retrieve an image of the proper data sheet and can send a copy via Filenet's Fascimile Server to an on-site fax machine.

In addition to the imaging system, Chemtrec has a Novell, Inc. local-area network with six IBM Personal System/2 Model 70 microcomputers; this system is used as a database of industry experts and report-generated incidents, according to Sauer.

MITCH BETTS

Summit key: Smooth migration

BY ROSEMARY HAMILTON
and MARYFRAN JOHNSON
CW STAFF

With the expected unveiling of its Summit line next month, IBM will position its large-system strategy for the next several years in one giant sweep, observers said.

"There'll be about 130 products. . . . This is probably the largest large-system announcement of the decade," said Jim Cassell, an analyst at Gartner Group, Inc., which has pegged the date of the announcement for Sept. 5. "They will replace the 370 product line from 3 [millions of instructions per second] to 200 MIPS in one day."

The announcement will include the long-expected 3090 follow-on, commonly referred to as Summit. The system is expected to feature some initial capabilities of the future large-system concept that IBM sketched out last month [CW, July 3]. To that end, users and analysts said they expect some initial clustering and specialized processor capabilities to be unveiled.

IBM is expected to offer some capabilities, such as fiber-optic channels, as features on the new system and enhancements to the existing 3090 J line. In addition, the company is expected to provide an upgrade package to 3090 J users that would allow them to move more easily to the new generation with their existing equipment.

"What IBM will do is add more [thermal conduction modules] to the processor, and the channel technology will change to fiber-optic," said Terry Lowder, vice-president of technical research at Columbus, Ohio-based Banc One Corp., which has been briefed on what to expect.

The move to fiber-optic cabling from copper wire will double the throughput from the current 4.5M byte/sec. to at least 10M byte/sec., he noted.

"All this is setting the stage for sysplex processors — allowing computers to talk directly, to be attached at the memory level," Lowder explained.

The sysplex feature, which is soon to be announced but will be limited in its implementation at first, according to analysts, is designed to allow multiple machine partitions to act as a single-system image. An early use of sysplex would be to boost the performance of IBM's DB2 relational database management system.

Easy migration

Software migration to the Summit machines should only be a problem for shops that have not moved to MVS/ESA, said Doug Underhill, assistant vice-president of technical services at CSX Techology Corp. in Jacksonville, Fla., which has four 3090 Model 600Js, one Model 600S and two Model 600Es.

"I would expect that users with MVS/XA would continue to run, but they can't take advantage of the new hardware facilities," Underhill said. "Our experience has been that if you keep the software and hardware at the same level, the compatibility is quite good."

"I believe they will make the upgrade to the J transparent, though you'll pay for what you get, of course. But we're not expecting any major problem in making that transition to Summit," said William Anderson, chief information officer at Prudential-Bache Securities, Inc. in New York.

While the IBM 3090 J-Prime may be evolutionary rather than revolutionary, its appearance aids long-range planning for some information systems managers.

"In terms of asset management, getting something that would evolve would be a good idea. Acquiring short-term capacity is never cheap," said Neal Franking, director of information services at Intel Corp. in Folsom, Calif.

Senior West Coast editor Jean S. Bozman contributed to this report.

3090

FROM PAGE 1

to existing 3090 J systems, will create an initial Summit system.

"That's taking the J-level machine, adding some parts to it, and it'll become phase one of Summit," Moore said. "It has the same serial number [as the existing J]. That will be delivered early. Then late next year will be the real Summit."

In all, IBM wants a gradual transition in its product line to avoid disturbing the market too dramatically. "IBM is making a 20% to 30% performance jump from the 3090 J to Summit. That's only about one year's worth of improvement, in comparison to earlier product transitions," said Frank Gens, vice-president of Technology Investment Strategies, Inc. in Framingham, Mass. "That's because IBM believes that a two-time jump in performance would be too big a [financial] bite for many customers to swallow."

Summit's overall pricing scheme will likewise send a signal to IBM's mainframe customers about the future of the 3090 line, other users noted. A Summit machine with a premium price will tell users that the 3090 has some robust years of life ahead of it, while a more aggressive price will indicate the 3090's demise.

Lowder said he expects the price per MIPS to eventually hit $75,000, rather than the $100,000 to $120,000 per MIPS that many industry analysts are predicting.

While other users said they expect an initial cost factor of $100,000 per MIPS and a drop next year to about $90,000 per MIPS, William Anderson, chief information officer at Prudential-Bache Securities, Inc. in New York, noted that IBM "has to get aggressive to stimulate the move" of users up the mainframe line. Prices per MIPS falling down to $75,000 would be a sure sign of that kind of aggression, he added.

An IBM spokesman would not comment on the expected announcement but provided a copy of a speech presented by Bernard Puckett last week at the IBM Share user group meeting in New Orleans. Puckett is president of IBM's Data Systems division, and his speech shed more light on the company's plan for the J models.

Puckett said that IBM has "designed the J series so it is IBM's strategic platform, with a very useful life now and in the future."

"From this J platform," he added, "customers will be able to take advantage of the performance and function of future processor families, either through upgrades or by adding features to the 3090 J."

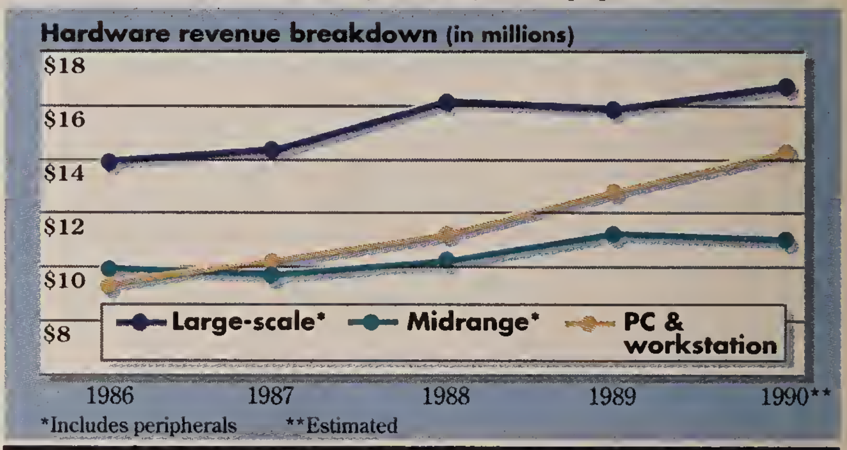
"We are happy the solution is going to protect our investment in IBM," said Anderson, who was briefed on the Summit announcement and said he liked what he heard. His data center has several 3090 Model 600s.

Not everyone is that enthusiastic about the initial Summit rollout. "Since we're not going to upgrade in the next 12 months, it wouldn't be an attractive package to us," said an IS manager at a Chicago-area IBM 3090 shop. "It seems that IBM wants to log some more money in the fourth quarter, but I'm not sure that buying a J-Prime now would be good for us." The user was briefed on the J-Prime announcement by an IBM sales representative in early August.

Senior Writer Maryfran Johnson and Senior West Coast Editor Jean S. Bozman contributed to this report.

The driving engine

While revenue from PCs and workstations is growing, mainframes and peripherals continue to account for 40% of IBM equipment sales



Source: Labe, Simpson & Co.

CW Chart: Paul Mock

On the horizon

The following are other highlights IBM customers and analysts said they expect to see unveiled in early September:

- A new release of DB2 — possibly skipping the anticipated Version 2.3 and moving right to Version 3.1 — will feature more functions for distributed database management.
- A new version of the MVS operating system, called MVS/SP Version 4. This is reportedly an enhanced version of MVS/ESA that will support all the new features provided on Summit machines, including support for communications between multiple PR/SM partitions of main memory.
- The initial pieces of IBM's system management architecture, which has no official name yet but may acquire one by announcement time, will be introduced with features such as security enhancements, change management, version control, automated system operation and additional storage management tools.
- The IBM 4391, a follow-on to the IBM 4381 that will reportedly run at more than 20 MIPS — a dramatic boost from the 4381's 8 MIPS.
- New fiber-optic cabling will allow disk-drives to be placed up to 9km away from the central IBM 3090 complex. The serial fiber-optic channels do away with the electrical resistance in the old copper-wired channels that had limited CPU separations to 500 feet or less.

'Let's make a deal' pitch may bridge IBM generation gap

BY JEAN S. BOZMAN
CW STAFF

IBM salespeople have been wheeling and dealing in recent months in an effort to stem the placement of IBM plug-compatible mainframes made by Amdahl Corp. and Hitachi Data Systems Corp.

Analysts said IBM's dual-fold motivation is to ensure that the data center remains in the IBM fold at a time when there are few features differentiating vendors and to tie a hefty discount to a user's commitment to eventually upgrade to Summit.

"There have been occasions when IBM's discounting has gone to 45% or 55%," said Frank Gens, vice-president of Technology Investment Strategies, Inc., in Framingham, Mass. "That's why IBM is dying to get into the next [mainframe] product."

The deals will continue, it seems, because IBM is indicating that the first Summit machines are "place-holders" for more powerful models due out in 1991. Many customers reported that they have been offered before-Summit price reductions — after signing nondisclosure papers, of course. One customer said an IBM representative offered a "market-basket" combination of IBM 3090 J-Prime features and reduced prices on IBM 3490 tape drives.

The no-holds-barred atmosphere has proved exhilarating for many. "Instead of jumping up and down over Summit, customers are jumping up and down over the deals they can get from IBM," said Mike Egan, a senior analyst at Meta Group, Inc. in Westport, Conn. "We've heard about discounts as high as 50%, as well as up-front discounts on the J-Prime machines."

IBM offers System/36 users new tune

BY MARYFRAN JOHNSON
CW STAFF

NEW YORK — IBM is going fishing tomorrow, and its juiciest piece of bait is AS/Entry — the first field-upgradable system designed to lure reluctant System/36 users into the midrange waters of the Application System/400.

With an internal code name of "Yukon" — an unintentional pun on the frosty reception System/36 users have given previous low-end AS/400s — the new model is actually an enhanced System/36 that runs the SSP operating system but can be bumped up to the AS/400's operating system with a board swap. The new entry model replaces the current AS/Entry, which is an enhanced System/36 Model 5363 with no upgrade capabilities.

In introducing the AS/Entry 9402 Y10 and two new low-end AS/400s, IBM is dropping the price of admission to its premier midrange line to well under $20,000.

The exact prices were still a deep secret last week, however — even among the software developers and customers already using the new machines.

"Users are really excited about the lower price point and about the field-convertible system," said Rodger Peck, president of Common, a 4,500-member user group for the IBM midrange. The new models will be accompanied by lower-tier prices for AS/400 software — another boon for users, he said.

Of more general appeal to the AS/400 base, now estimated at 85,000 systems worldwide, are enhancements in networking and communications software, a new version of the OS/400 operating system that allows disk mirroring and performance and memory "kickers" for the high-end Model 70. New versions of Cobol, Fortran and C programming languages will also be unveiled, several sources said.

"There is a tremendous amount of new features [in this release of the operating system] that are very impressive, just in the sheer volume of new things," said Rich Hollahan, network manager at Atlanta-based Georgia-Pacific Corp., which runs a network of 55 AS/400s. "I would have liked to have started today with Release 3.0 rather than 1.2."

Yet Hollahan scoffed at the notion that IBM is calling AS/Entry an "upgradable" system when a user must change operating systems. "At some point, you've got to cross over, and that's where you run into problems," he said. "If you're running [System/36] code and the [System/36] operating system, you have to convert that."

Industry analysts said that tomorrow's announcement is the most aggressive assault the computer giant has made on its recalcitrant base of roughly 250,000 System/36 users, many of which are small businesses that refused to swim upstream to the AS/400.

Allright Corp. in Houston is one example. Don Whalen, data processing manager at the parking lot and garage management firm, has been relying on a System/36 as the company's main processor since 1985.

"We are pretty interested in this announcement. We're going to have to do something soon because I'm running out of capacity," he said last week. His two-person department runs all in-house applications, which handle financials, payroll and billing for 2,000 Allright lots and garages in 80 cities.

The two choices Whalen is weighing now are keeping his workhorse System/36 and off-loading just a few applications to a new low-end AS/400 "or biting the bullet now" by moving into a midlevel model such as an AS/400 Model B45.

For System/36 users thinking of migrating to the AS/400, a particularly alluring piece of the new OS/400 is supposed to be "Operational Assistant," a System/36 lookalike shell that reportedly disguises the complexities of the AS/400's operating system.

"That is a very important feature, because a [System/36] user can practically operate his system in his sleep," Peck said. "The slightly different commands on the AS/400 make that sense of command disappear."

"Anything making this a friendlier operation is welcome" for both AS/400 and System/36 users, said Dennis Klinger, vice-president of MIS at Ryder Truck Rental Co. in Miami.

"IBM clearly has a strategy to bring in that [System/36] market, and while I'd like to see some bigger AS/400s, I think the low-end systems will help us expand into areas that have been tough to get at," Klinger said. "What I really care about is, does it make business sense?"

Low-end focus

IBM is expected to announce three low-end AS/400 systems Tuesday at an entry price below $20,000

System	Memory	Disk storage	Operating system	Maximum workstation attachment
AS/Entry 9402 Model Y10	1M-2M bytes	160M to 640M bytes	SSP	28
AS/400 9402 Model C04	8M-12M bytes	640M to 960M bytes	OS/400	14
AS/400 9402 Model C06	8M-16M bytes	640M to 1,280M bytes	OS/400	54

CW Chart: Paul Mock

Midrange CASE rookie takes the field

BY MICHAEL FITZGERALD
CW STAFF

MINNEAPOLIS — A new player entered the market for midrange computer-aided software engineering (CASE) tools last week with the release of Unix-based CASE tools for a broad array of IBM systems, as well as Unisys Corp. mainframes.

Lawson Associates, Inc., a vendor of financial software for midrange and large IBM systems and Unisys mainframes, said its Universe/CASE tool is designed to automatically generate RPG III code for IBM's System/38 and Application System/400 series systems. The product, informally dubbed Android, will also generate Cobol code for the IBM 4300 and 3090 mainframe series and for Unisys A series mainframes, the company said.

Vaughan Merlyn, an analyst at CASE Research Corp. in Bellevue, Wash., raised an eyebrow at the breadth of the product's code-generating abilities.

"No one else is doing that," Merlyn said, referring to the range of systems included in the CASE product's scope.

Lawson has developed software that will import definitions from AS/400 DDS files, Unisys DMS2 files and IBM mainframe VSAM and DB2 files into its dictionary. The company also introduced a complementary Universe/Report Writer, dubbed Microid.

The menu-driven Universe products are intended for use in so-called middle CASE (data modeling and program report definitions) and lower CASE (code generation, documentation and database specification) applications.

Beta-test users agreed with Lawson's estimates that Android will generate between 25% and 95% of the code required for specific programs. The product generates 95% of the code needed for inquiry or on-line maintenance programs, with one user reporting nearly 100% code generation. It reaches between 90% and 95% generation on report-type programs.

For batch programs, though, the code-generation capabilities are said to be much lower. Lawson said it expects to have a program module to correct its batch deficiencies by the end of the first quarter of 1991.

A standing-room-only crowd came to see a beta-test user presentation on the products, which did not surprise analysts, who said the market for midrange CASE tools is underserved.

"People in the midrange world are very eager to get on the CASE bandwagon," commented Robert V. Binder, a principal at Chicago-based firm Robert Binder Systems Consulting, Inc.

Beta-test user David Denes, director of MIS at Davey Tree Experts Co. in Kent, Ohio, said he obtained the Lawson product in November 1989 and is already using Android for mission-critical applications.

For instance, the company, which earns about half of its revenue from public utilities, needs to develop time reports and payroll and billing routines that meet the requirements of each of its 50 to 60 utility customers. Using traditional methods, Denes' staff completed four utilities in 18 months. With Android, the first utility was finished in two months, and Denes said he expects to see development time go below one month in the future.

Other midrange CASE vendors include Synon, Inc.; System Software Associates, Inc. in Chicago; and Summit Technologies, Inc. in Westmont, Ill.

IBM's Repository blueprint details fuzzy around edges

IBM will release a customer document within the next few weeks that explains its information model, the blueprint to its strategic Repository Manager. However, it has yet to decide just how public the actual model specifications will be.

According to a company spokesman, IBM is currently reviewing its options on delivering the specifications to the model, which is not only a key piece of Repository Manager, but also the framework of IBM's overall application development strategy, AD/Cycle.

Currently, specifications are available only when a customer licenses Repository Manager, which costs about $4,500 per month on a high-end 3090.

Industry observers contacted last week said IBM is caught between a desire to promote AD/Cycle as the industry standard and to maintain some control over the information model.

"To me, open means published, and the specifications should be available," said Ali Hazzah, president of Safe Harbor, Inc., a consulting firm in Pelham, N.Y., that focuses on data modeling.

"The intent is to have an open architecture, so we are looking at the best possible ways to do that," the IBM spokesman said.

ROSEMARY HAMILTON

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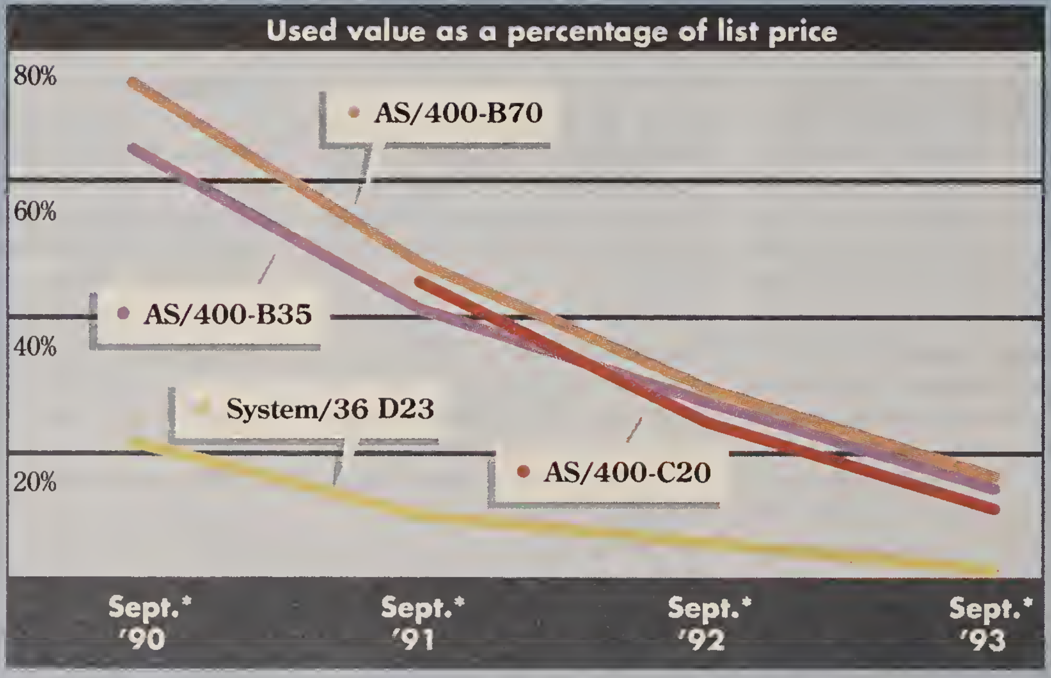
TRENDS

IBM

AS/400

Estimated residual values of selected IBM processors as reported by Computer Economics

Model	List price (in thousands)	Residual value (in thousands)			
		Current used price	Sept.* '91	Sept.* '92	Sept.* '93
System/36 D23	$52.8	$11.0	$5.4	$2.9	$1.3
AS/400-C20	$36.5	–	$16.2	$8.8	$4.0
AS/400-B35	$28.7	$18.7	$11.7	$7.7	$3.9
AS/400-B50	$144.4	$110.0	$71.2	$39.1	$19.9
AS/400-B70	$319.3	$240.0	$152.0	$92.6	$50.8


Used value as a percentage of list price

*Projected

Source: Computer Economics, Inc., Carlsbad, Calif.

CW Chart: Paul Mock

NEXT WEEK

In many companies, the ▶ person who sets the standards for personal computers and local-area networks purchases is the one who yells the loudest. Not so at Martin Marietta Corp., where 35-year-old **Alan Soucy** developed and maintains a rigorous, objective standards-setting process. Read the inside story in Manager's Journal.

Manuello Paganelli

"Let the customer do it." Increasingly, that's the attitude taken by many organizations that use technology to enhance profit margins and customer service. Next-generation automated teller machines, grocery self-checkout and self-serve photo kiosks are but a few of the innovations now in use. Check out the whole story in In Depth.

INSIDE LINES

And let's not forget the 9370

There seems to be an internal contest going on at IBM as to which of several low-to-midrange lines gets to be the "ultimate distributed processor." The RISC System/6000 and Application System/400 divisions seem to be racing to make their systems more "open" to the non-IBM world; upcoming introductions will make the AS/400 more viable in RS/6000's world of manufacturing, research and development and Ethernet. Now we hear that IBM plans to reintroduce the 9371 as the "ultimate distributed processor" next month, believing it didn't do the system justice the first time around. We also hear that at least one customer, Sears, got its 9371s at the bargain price of $20,000 apiece, hardware and software included.

Tear off the first sheet

It's official: Airis Computer, the saucy start-up notebook computer maker, will not ship its low-cost, high-powered notebook computer at the end of this month. A weary-sounding Jeff Maziarek, Airis' co-founder, said that the machine will hit the streets in late September or early October, two months later than the company's stated 10-month deadline.

In need of family counseling?

The word on Compuserve is that IBM will ship OS/2 1.3, which got its first glimpse of the world at a spring trade show, in October. IBM had a few heated words to say about Microsoft's soft-pedaling of OS/2 1.3, the 2M-byte version of OS/2 Standard Edition they jointly developed, admitted Steve Ballmer, Microsoft's software vice-president. If you'll recall, after IBM lived up to its November promise by proudly unveiling a sleek OS/2, Microsoft promptly took the wind out of Big Blue's sails by questioning the need for it, and suggesting its next release of OS/2 would be 2.0. "If you come up with a 350K savings in OS/2, do you have a legitimate, credible 2M-byte system? You can make the call," Ballmer said, implying that Microsoft already has. Pressed to comment on the apparent lack of unity, a candid Ballmer said, "We used to go to great pains to hide [disagreements]. But I have to admit that we have not done this for the last three to four months."

That's a big 10-4

The first big name to go sans wires in networking will be NCR in Dayton, Ohio. NCR will announce its spread-spectrum radio-linked local-area network a week from today. The field thus far has been dominated by start-ups and niche players.

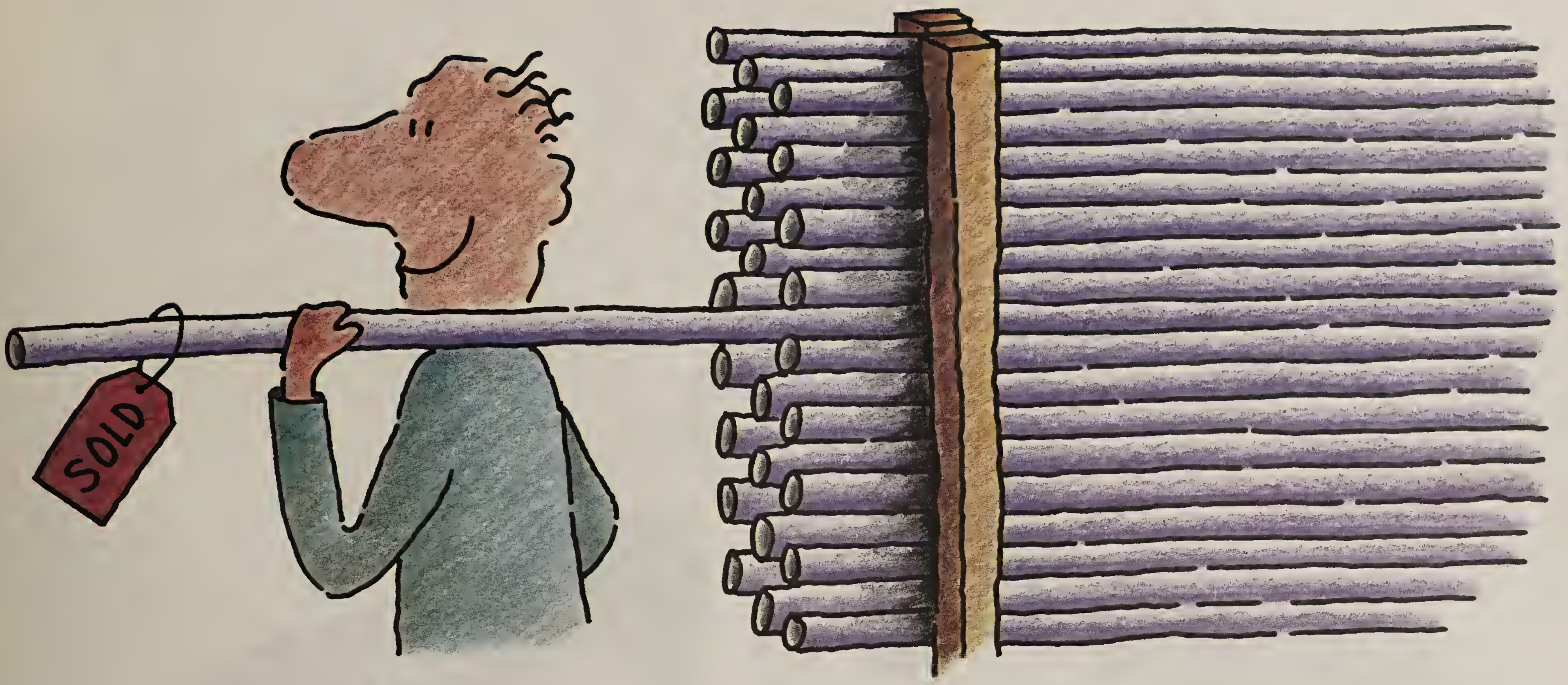
SNAppier network plans

IBM apparently has finally recognized the burgeoning demand for a nice, intelligent box that lets LAN users talk both to Systems Network Architecture (SNA) systems and to other LANs via popular protocols such as Transmission Control Protocol/Internet Protocol (TCP/IP) and Open Systems Interconnect. The vendor is expected next month to endow its 3174 with the SNA peer protocol PU2.1 so that LANs attached to a 3174 can talk to each other directly, without the usual awkward side trip through the nearest host or front end. IBM also is rumored to be readying a hybrid that combines the 3174's SNA support with the 3172 controller's support of popular networking protocols.

High-flying flatfoots

When a young computer hacker broke into an unclassified computer at the Pentagon last November, the U.S. Air Force was quick to draw a bead on him. The Air Force's Office of Special Investigations (OSI) is the only federal agency with a full-time staff of computer crime investigators, according to the OSI. There are 14 Air Force computer crime cops stationed at air bases around the world. The group was instrumental in tracking down the Hannover hacker, profiled in *The Cuckoo's Egg* by Clifford Stoll.

So, is Summit a revolutionary leap forward in the computer age, or a wimpy effort by IBM to move forward while dragging along the burden of its mainframe success? You'll be making the call, and we're here to hear it. Drop your opinions on News Editor Pete Bartolik by contacting COMPUTERWORLD *on MCI Mail, faxing your views to 508-875-8931 or calling toll-free 800-343-6474.*



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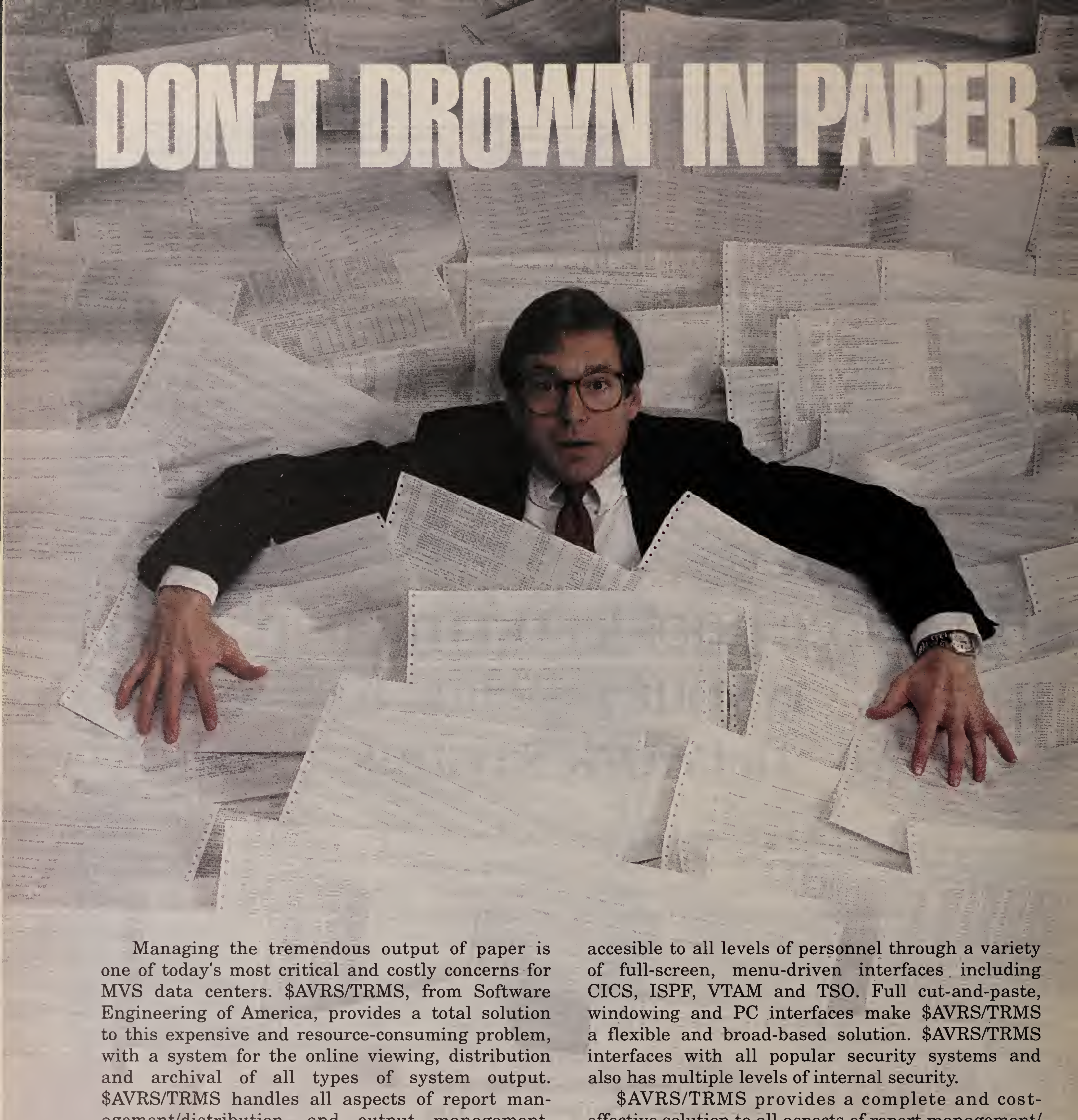

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